Understanding European Research Foundations

Findings from the FOREMAP project

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Foreword
Why map research foundations?

Over the course of time, from the Medicis supporting Galileo to 21st-century foundations advancing science in countless fields, the pursuit of new knowledge has always benefited from the philanthropic patronage of private individuals and organizations. Yet there is little documentation on the collective contribution made by foundations to research in Europe today, and in some countries there is little or no understanding of foundations and their role in science. This 'invisibility' is remarkable given that our best guess is that the European foundation sector has been and continues to be a very significant player in the advancement of European science and technology.

Interest is growing, however, in Europe and at national level to quantify and qualify foundations' support for research. Much of this interest follows the publication in 2005 of a study by an independent expert group set up by the European Commission to look into the role of philanthropy in the financing of research. Building on this momentum, 2007 saw the creation by individual foundations and the European Foundation Centre (EFC) of a European Forum on Philanthropy and Research Funding aimed at encouraging philanthropic support for research.

The FOREMAP (**FO**undations **RE**search and **MAP**ping) project is the first attempt to systematically document foundations' contribution to research in Europe. Four countries with diverse foundation and research backgrounds (Germany, Portugal, Slovakia and Sweden) were selected to pilot a mapping methodology, which has been specifically designed for application across the EU.

This report outlines the results of the initial FOREMAP mapping, with details on volumes of funding, scientific fields of focus, perceived roles, etc. Drawing on discussions held within the European Forum on Philanthropy and Research Funding, the report also provides a general overview of some of the key characteristics of research foundations in Europe. Also featured are essays on the challenges of mapping foundations in general and more specifically in the field of R&D, and on understanding the current and future role that foundations can play in supporting research in Europe.

The main objective of this report is to increase understanding and awareness among research stakeholders of foundations and their role in supporting research. As such the report is mainly directed at foundation executives, civil servants involved in research policy, researchers, research managers, university presidents, and anyone with a stake in European research, including those individuals and corporations considering setting up their own foundations.

Recommendations are included in the report on how best to expand the mapping to the rest of the EU member states. These include suggestions on how to create an enabling environment for data collection on research foundations and how to encourage research foundations to be mapped.

This report marks the very first step in presenting a more nuanced underscoring of the contribution of Europe's research-funding foundations. I trust that this will further whet our appetite, in spite of the difficulties in obtaining qualitative and quantitative data, and will add vigour to our endeavours to gain a comprehensive picture of research foundations' collective actions across the EU27.

Gerry Salole
Chief Executive, European Foundation Centre

Getting to the essentials

This report is a comprehensive compendium of all the work that has gone into the FOREMAP project, not all of which may be of immediate interest to every reader. The following points may be of assistance to readers wishing to find specific information, rather than reading the report in full.

- **I want to learn more about foundations and their support for research.**
  Starting with the contextual perspectives given by Mats Rolén and Marco Demarie (sections 1.2.3 and 1.2.4), you will learn first-hand from the personal experience of two foundation professionals about research foundations and their roles. Delve deeper into the subject in chapter 3, 'Understanding European research foundations', which will provide you with a general overview of research-funding foundations in Europe: where their money comes from, how and where they spend it, and so on. You will now have a basic understanding of research foundations, so why not launch into the four exploratory overviews of research foundations in Germany, Portugal, Slovakia and Sweden?

- **I am interested in learning about research foundations in Germany, Portugal, Slovakia and Sweden.**
  Experts from each of the four countries have applied the FOREMAP mapping methodology to provide an exploratory overview of their national research-funding foundations. The results of this work provide an interesting overview of research foundations (chapter 2). Each country report also details the experience of documenting research

foundations and some of the challenges faced. If this is an issue that interests you, you can learn more about the challenges of documenting the third sector from Caroline Gijselinckx and Tobias Vahlpahl, both seasoned researchers in the field (sections 1.2.1 and 1.2.2). In addition to this, Veijo-Ismo Ritola gives insights into measuring research and development in Europe (section 1.2.5).

– **I am interested in the FOREMAP mapping methodology and tools.** An objective of FOREMAP is to encourage further mappings in the remaining European countries. Details on who can gain from this and additional recommendations on how best to go about it are provided in chapter 4. This is essential reading if you are interested in running a mapping exercise in your own country. Head straight to chapter 5 for all the details regarding the FOREMAP mapping methodology, as well as the relevant questionnaires.

1 Introduction

1.1 Executive overview of FOREMAP

FOREMAP (FOundations REsearch and MAPping) was born out of a need to understand the contribution of foundations to European research.

In December 2004 the European Commission convened an expert group to investigate ways to boost the role of foundations and the non-profit sector in supporting research. The group outlined the crucial need to gather information on the role and importance of foundations in investing in research. The work of the expert group marked a first step towards an accurate understanding and assessment of the contribution of research-funding foundations at the European level.

In January 2008 the FOREMAP project was launched. An initiative co-funded by the European Foundation Centre (EFC) and the European Commission, FOREMAP aimed to develop a methodology to map European research foundations, their activities and their impact on science.

The FOREMAP project was overseen by a Scientific Advisory Committee (SAC), which monitored progress and provided valuable input throughout, particularly with regard to the development of the mapping methodology and associated questionnaires. The SAC was composed of five members with complementary expertise in the areas of research policy, philanthropic funding and documenting the third sector.

After reviewing previous data collection exercises and publicly available data on foundations' contribution to R&D, a methodology was developed specifically to document the support to research provided by foundations.

This methodology was designed to collect quantitative and qualitative data on foundations' research activities in the different EU countries. To reflect the varying frameworks that regulate foundations across the EU member states, the methodology was conceived with a degree of flexibility in order to be applicable in all EU states.

Once finalized, the methodology was piloted in four countries chosen to reflect the diversity of the foundation and research sectors to be encountered in Europe. The countries chosen were Germany, Portugal, Slovakia and Sweden, and the mappings were undertaken by four researchers in the respective countries chosen for their expertise and knowledge of their local foundation sector.[1]

The outcome of the pilot studies provided us with:

- A qualitative and quantitative overview of the role of the surveyed research foundations in supporting research in Germany, Portugal, Slovakia and Sweden. In each country, the foundations surveyed represent the major players supporting research and account for a large share of foundation spending on research. They present the reader with an understanding of foundations' contribution to research, including the amounts invested and the research fields supported. They also reveal how foundations see themselves in the research arena, their practices, and the policies that influence their work. These findings are contextualized with a general overview of the national research and foundation scene.
- Confirmation that the methodology and tools as initially designed allow us to collect useful quantitative and qualitative data on research-funding foundations.
- Feedback that allows us to improve the mapping methodology and tools, and lessons to be taken into account in future mappings.

The methodology and tools were revised in the light of the experience of the pilot study and are publicly available to any researchers interested in applying them in other European countries.

The FOREMAP methodology takes us one step closer to getting a comprehensive picture of foundations' contribution to the research arena. However, further refinement in the research methodology and mobilization of the foundation sectors are needed in order to allow comprehensive and comparative results to be gathered across the EU. With this in mind, a final step

[1] The mapping partners were Bundesverband Deutscher Stiftungen, Universidade Católica Portuguesa, Slovak Donors' Forum, and Stockholm School of Economics.

of the FOREMAP project was to gather in Brussels representatives of public authorities, research foundations, associations of foundations, and researchers active in documenting foundations, in order to draw up recommendations to further the understanding of foundations' contribution to R&D. The results of this meeting are also presented in this report. We hope that they will inspire readers to consider what role they can play in supporting the documentation of research-funding foundations in their own country.

The FOREMAP project has laid the groundwork for the collection of data and information on how foundations support science across the EU and on the level of their support. A key element of the project is the development of a methodology and questionnaire which can be used to collect comparable data across European countries. The collection of such data is crucial not only to allow a better understanding of the role foundations play in advancing research across Europe, but also to increase and improve the visibility of research foundations across all sectors of society.

1.2 Contextual perspectives

As part of FOREMAP, a Scientific Advisory Committee (SAC) was established to monitor and provide input on the development of a viable mapping methodology and its implementation in the ensuing pilot study. The five members of the committee were selected for their proven expertise in such areas as researching the third sector, measuring EU Research and Development (R&D), and developing foundations' research programmes. In this chapter, essays by the committee members set the scene by exploring some of the challenges faced in mapping foundations, both generally and specifically in the field of R&D, and in seeking to understand the current and future role that foundations can play in supporting research in Europe.

1.2.1 Researching foundations and the third sector in Europe

Caroline Gijselinckx

The discovery of the third sector

Although numerous organizations that are now said to belong to the third sector were established after democracy had taken hold in Europe, and some even earlier, the third sector itself has only recently been discovered as an area of research. As a concept, the third sector refers to a plethora of organizations that are situated between market and state. Apart from their positioning between market and state, the features that connect these diverse organization types are their not-for-profit orientation and their aim to benefit the community in

general or to meet the social demands expressed by a specific segment of the population.

Research into the third sector has its origins in two different traditions. The *non-profit approach* is embodied in the Johns Hopkins Project (see, among others, Salamon and Anheier 1996 and 1997; Salamon and Sokolowski 2004). It focuses on non-profit organizations, which are clearly divided from the private, profit-oriented business sector on the one hand and the sector of public services on the other. It explains the emergence of the non-profit sector as the result of market and state failures. The *social economy approach* focuses on a broader, yet also more restricted, sphere between market and state (see, among others, Borzaga and Defourny 2001; Evers and Laville 2004; Pestoff 1992). This approach is broader in that it not only focuses on organizations such as charities, voluntary organizations and foundations, which are also part of the non-profit approach, but also includes in addition mutuals, cooperatives and other institutions which are recognized for their pioneering contributions to the development of innovative social services in Europe (Evers and Laville 2004). They may operate within the market, but maximizing profit is not their primary aim; they may realize profit, but their primary focus is on service delivery; profit, if made, is the means by which service delivery is continued, broadened and improved; they may be initiated or heavily supported by government, but they have their own governing structures (Defourny, Develtere and Fonteneau 1999). Recent studies pay much attention to so-called hybrid organizations, which are driven by the logics of market, state and civil society (Brandsen, van de Donk and Putters 2005; Evers and Laville 2004). The social economy approach is, however, also more restricted than the non-profit approach, since it excludes those (non-profit) organizations which are not involved in the economic production of goods and services.

The *third sector concept* is meant to integrate both the non-profit approach and the social economy approach. Recognized on both sides of the Atlantic is the premise put forward by Seibel (1990) that third sector organizations are not only producers of goods and services, but also major political and social coordinating factors.

Foundations as third sector organizations

Foundations, at least public benefit foundations, are typically non-profit organizations, voluntarily set up to meet the needs of society in general or of specific target groups. They focus on fields such as education, health, social services, arts and culture, environment, science and research. Most of them are set up by private individuals; some by corporations, governments or local

communities (Anheier and Toepler 1999a; EFC 2005 and 2008; Gijselinckx 2008; Gijselinckx and Develtere 2006; Gijselinckx and Franchois 2008). They are autonomous entities led by their own boards, even in those cases where they are set up by corporations, governments or local communities. Some of them can be said to operate according to a 'managerial paradigm' (Beyer 1999). Some of the most well-endowed, professional foundations can be said to act as 'venture capitalists', which are managed strategically and professionally and provide seed money for innovations in areas of public interest (Anheier and Leat 2002). In this way, foundations can be situated between market and state – albeit on a continuum, with some closer to the public sector, others to the market.

Within the third sector, foundations differ from associations and other member organizations in the sense that they do not have members. They cannot, therefore, be said to follow the logic of participatory democracy characteristic of most other third sector organizations. However, it can be argued that they give voice to society by engaging private persons on boards, juries and committees which decide on the projects to be developed or supported by the foundation (Develtere, Van Ootegem and Raymaekers 2004).

European foundations often have a clear service delivery function. US foundations, on the other hand, developed as important financial, redistributive instruments in a society that combined surplus wealth with limited income redistribution. With the unprecedented accumulation of private wealth in the postwar period, Europe also experienced a rise of these so-called grantmaking foundations with a purely financial, redistributive aim, as well as of foundations combining grantmaking and operational services (Anheier and Toepler 1999a). The operating type of foundation, however, remains popular in Europe (EFC 2008). It should also be recognized as a minor but important part of the US sector of foundations (Toepler 1999).

Researching foundations

Researchers only recently rediscovered this rich and dynamic reality, collecting and systematizing data on foundations. This may not, however, prove to be an easy task – especially not when the aim is to make a cross-national or a comparative analysis.

Even bigger than the differences between legal frameworks regulating foundations[2] is the lack of systematized and exhaustive data on the foundation

[2] Legal frameworks regulating foundations differ throughout the world. However, a recent study has shown that, throughout the 27 member states of the European Union, major similarities can be found in the legal frameworks with respect to public benefit foundations. The most important differences are to be found in the matter of their founding assets, their private supervisory instruments (ie auditing and disclosure), and the scope of their economic activities. Also, fiscal treatment of foundations may vary widely throughout Europe (Hopt et al 2009).

sectors in many countries. In several countries there is no central foundation register where foundations are obliged to register or get state approval. This makes it hard to measure the exact number of foundations and to get accurate information on their founders, their purpose, the scope of their activities and their target population.

In some countries financial information on foundations may be available from national statistical databases (based on publicized annual reports), but generally such information relates only to the biggest foundations in the country, since the smaller ones are often not obliged to publish their annual reports. Moreover, the available statistical data is not detailed with respect to income sources and the categories of activities and beneficiaries supported.

Surveys on foundations may be conducted to gather more detailed information, as well as information on those foundations which are not registered and/or which are not obliged to publicize their annual reports. Such surveys tend to suffer from low response rates, especially from foundations that lack the personnel to fill in questionnaires. However, in terms of impact, it can be argued that they gather information from the most substantial part of the foundation sector. When used in cross-national surveys, it is extremely important to make sure that translations of concepts, questions and response categories are adequately made, linguistically as well as contextually.

Recent publications of facts and figures on foundations in Europe by the Research Task Force of the European Foundation Centre (EFC 2005 and 2008) have tried to capture foundations' characteristics and societal impact. So, too, have monographs on the foundation sector in various countries throughout the world (as, for example, collected in Anheier and Toepler 1999a and Schlüter, Then and Walkenhorst 2001).

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1.2.2 The future of the third sector research agenda: challenges and perspectives

Tobias Vahlpahl

Conducting comparative research on foundations and third sector organizations from a scientific viewpoint is a very challenging undertaking because of the many obstacles that lie in the way. This article explores some of the most significant of these obstacles and outlines the specific tasks and research topics that should be considered as part of the sector's future research agenda. The agenda presented here is designed to stimulate discussion.

Today's European foundation landscape is more varied and more complex than ever, and it is increasingly dynamic and changing. In recent

decades, foundations have grown in number across most European countries; their policy importance has generally increased, both domestically and internationally; and they have begun to operate across borders with a wider range of institutions and at levels much higher than in the past. Yet at the same time, we know relatively little about foundations, and certainly less than we know about market firms, public agencies and other non-profit organizations.

Fifteen years in the making

The third sector research agenda was largely put in place in the 1990s, and evolved from institutional economics, public choice theory, organizational analysis, and comparative approaches in sociology and political science. The research agenda has been shaped over the last 15 years by three sets of key questions (see figure 1). The first set concerns *institutional choice*: why non-profit or third sector institutions exist in the first place and what form they take in different countries. What is the rationale for the choice of form, and how do theoretical expectations relate to reality? Although the same questions apply to foundations, as a particular form of non-profit organization, it may be that foundations have a different set of explanations from other non-profit forms.

The second set of questions deals with *organizational* behaviour and how non-profit institutions compare with alternative providers and forms in terms of efficiency, effectiveness and client base, among other aspects. Again, the same questions about organizational behaviour can be posed in the case of foundations. Given that foundations tend to be organized differently from membership organizations, and differently from corporate non-profits, it is to be expected that they reveal differences in organizational behaviour as well.

The final set of questions addresses the *implications and consequences* of non-profit forms in terms of impact, equity and other distributional characteristics. These questions, too, can be posed in relation to foundations, in particular regarding the extent to which they serve a redistribution function, and enhance the innovative, problem-solving capacity of recipient organizations, in a field such as education or in society at large.

Empirical and theoretical neglect

The basic problem is, of course, that the research agenda has been, and continues to be, directed first and foremost at service-providing non-profit organizations, and not foundations. Consequently, available theories typically explore at least some aspects of the 'why' and 'how' of non-profit provision in general and in specific fields such as education, health and social services.

Conversely, there is little in terms of theory when it comes to the 'why,' 'how' and 'what' of grantmaking foundations in particular.

Thus, foundations suffer from empirical as well as theoretical neglect. As is often the case in the social sciences, such neglect is indicative of larger underlying problems whose scale and import we need to fathom before laying out the contours of a research agenda. In this instance, the underlying problem is a fundamental conceptual weakness that continues to frustrate research efforts in the field of foundation research. Put simply, we have no common understanding of what a foundation is, what theoretical challenges they pose, what empirical information would be relevant and what it would be used for, and what our knowledge about them would do to inform policy issues.

Figure 1 Basic third sector research questions

	Level of analysis and focus		
Basic question	*Organization*	*Field/industry*	*Economy/country*
Why?	Why is this organization non-profit rather than for-profit or government-sector? Organizational choice	Why do we find specific compositions of non-profit, for-profit, government firms in fields/industries? Field-specific division of labour	Why do we find variations in the size and structure of the non-profit sector cross-nationally? Sector division of labour
How?	How does this organization operate? How does it compare with other equivalent organizations? Organizational efficiency, etc; management issues	How do non-profit organizations behave relative to other forms in the same field or industry? Comparative industry efficiency and related issues	How does the non-profit sector operate and what role does it play relative to other sectors? Comparative sector roles
What?	What is the contribution of this organization relative to other forms? Distinct characteristics and impact of focal organization	What is the relative contribution of non-profit organizations in this field relative to other forms? Different contributions of forms in specific industries	What does the non-profit sector contribute relative to other sectors? Sector-specific contributions and impacts cross-nationally

Getting down to basics

Considerable work still remains to be done in terms of a basic mapping of foundations in Europe. This would include a conceptual mapping of different types and forms, where they are found, and how they relate to concepts such as social economy, subsidiarity, social democracy, and other 'building blocks' of third sector–society relationships. The mapping would also include the scope of their operations/where they give grants, their priorities/key subject areas, how they work, how much they give and in what amounts, how they see their roles, and how those roles are legitimated within social and political cultures. Given the European emphasis of the research agenda, such a mapping should identify foundations working across more than one country, how much is being transferred between countries, what money is being spent on, why foundations choose to give outside their own country, and any obstacles to their doing so.

Concerning the mapping of the non-profit sector in Europe and more specifically the foundation sector, comparative research has to deal with some technical problems as well. The data situation is very weak at present, and this is due not least to definition problems and to the lack of common registration for foundations or non-profit organizations. Thus comparative research has to perform the task of thoroughly defining the types of organizations that should be dealt with and of evaluating available information about these organizations.

Much progress has been made in developing a repertoire of both rival and complementary theories of the non-profit form. The challenge now is to make those theories relevant to foundations (and to donor non-profit organizations more generally) and to explore where commonalities and differences exist and where additional theoretical efforts are needed. Much basic theoretical work remains to be done even for the foundation research agenda to catch up with the non-profit field generally. Moreover, a major effort would be required to provide the core data needed for theory testing and development.

Looking to the future

There are a number of key topics that will feature on the research agenda in the future with regard to foundations. On top of the list will be the formation and growth of foundations. As yet we know very little about factors associated with variations in foundation formation in different settings and cultures. There are various interpretations of the 'boom and bust years' of foundation formation, as well as some differences (or apparent differences) between countries.

We also need to explore the development of new types of foundation, including community foundations, government-initiated foundations and those

arising from the privatization of previously publicly owned assets/operations. Governments throughout the world are both privatizing many previously publicly owned services and encouraging business to behave philanthropically. These trends have important, potentially positive and negative implications for the philanthropic sector and for wider public policy. What forms do new foundations take? Who controls them? What do they do, and how? What are their costs and benefits? And, crucially, who or what are the drivers of these new forms and sources of organized philanthropy?

Another currently under-researched topic is the governance and management of foundations. Questions remain unanswered about foundation trustees, in terms of, for example, age, gender, ethnicity, religion, profession and social class, and the relationship between foundation trustees and other elite groups. We are also in the dark about the frequency of foundation trustees serving in more than one foundation. Research could shed light on how trustees are selected, the criteria and processes used, trustees' roles in theory and practice, and their perception of the line between governance and management. Similarly, we need to know more about staff in foundations and the 'profession of grantmaking', the career patterns of foundation staff, and whether there is mobility between foundations.

More specifically, we need studies of foundations as elites and of the values they espouse. Are those who run foundations offshoots of the 'upper classes' in Europe, or are they, as some suggest in relation to the US, one of the newly emerging post-industrial strategic elites competing for power and influence? We need to explore questions such as: how restricted is entry into the foundation elite? Is entry based primarily on achieved or ascriptive criteria? What are foundation leaders' values?

More generally, studies of foundations' changing environments are needed. How do foundations perceive the major changes in the environments in which they work? Are these perceived as threats or opportunities, and how are foundations responding? A look across Europe shows that national governments and the European Commission are, to varying extents, revisiting the role of government, markets and the third sector. Foundations are part of this policy mix, even though this is rarely made explicit. The important point is that many new policy initiatives are being developed and discussed, and this suggests a perhaps more fundamental policy shift – or search – the ultimate objective of which is, however, unclear. What kind of 'society' and what kind of 'community' do member states and the European Commission want? What is the role of foundations in that regard?

1.2.3 Research foundations as seen from the inside

Mats Rolén

In December 2004, the European Commission set up a group of experts to make a study of the role of foundations in European research funding. In its report *Giving More for Research in Europe*,[3] the group emphasized that the role of research-funding foundations is often neglected in discussions of Europe's efforts to strengthen its research. To some extent this is due to the fact that the research foundations' share of the total grantmaking to research and development (R&D) is rather small in economic terms, in so far as this has hitherto been possible to map. But there are, of course, significant differences between countries with respect to taxation and other legislation; the number of research foundations; the size of their assets and grantmaking; the extent to which they act in a supplementary capacity to the state and other public funds; and the flexibility with which they are able to determine their own agenda. The expert group notes that: 'the impact of foundation funding on the European research system cannot however be reduced to the absolute figures for foundations' support of research. Foundations not only bring with them money (quantity) but also special competences (quality) which fill a gap in the pluralism of funding.'

Swedish foundations and R&D

In most of the EU27 countries it would take huge research efforts to measure and evaluate the contribution of research foundations to R&D. This is especially so if our ambition is to get a comprehensive picture based on comparative and compatible data, and to try to find the 'number of unique characteristics' that the expert group expected to exist.

Recent research in Sweden shows that since 2001 foundations have provided annually about 4 billion Swedish krona (about €391 million) to (mainly) academic research. More than 2,000 foundations make grants to research, but the great bulk of the funding comes from a few big foundations. Some of these were established by members of leading families in the banking and industrial sectors and have their origins in the early 20th century, if not earlier. Other big players today are the so-called wage-earners' fund foundations, created by the Conservative government (1991–4) with a mission to fund strategic research. The upshot of this is that seriously large amounts of funding are transferred from foundations to researchers, research groups and/or their universities (for buildings, laboratories and other infrastructure) and that a number of 'actors' on

[3] *Giving More for Research in Europe: Strengthening the role of philanthropy in the financing of research*, report by Expert Group, European Commission, 2005.

both sides are involved. It should be noted, however, that this funding represents less than 5 per cent of total Swedish investments (corporate and public) in R&D, which stand at approximately 3.7 per cent of GDP.[4]

But what do these figures say about the contribution of the foundations' research funding? Recent research by Sörlin et al (2005) and Benner (2009) shows that the wage-earners' fund foundations for strategic research were regarded, from the time of their creation in 1993/4 and for some years afterwards, as big net providers of financial resources to the R&D system. But these investments were to some extent 'balanced' by decreasing or at least frozen governmental research funding during the later part of the 1990s, so they never represented a real new 'flood' of resources. There were great needs in the sector, and today the new foundations, as well as the old, are well-integrated partners in the overall funding of R&D in Sweden.

The new foundations had – based on their statutes – strong ambitions to be innovative, for instance by introducing new kinds of targeted graduate schools, long-term grants to research groups (often organized as networks), and new types of special career scholarships for young researchers (future research leaders). According to studies by Sörlin et al, this has had a clear structural impact on the organization of the Swedish R&D system, although the long-term effects should not be overestimated. But saddled with existing paradigms and 'research funding practices', several of these new initiatives could not have been realized by the governmental research councils and agencies. The foundations could make their own analyses and try solutions and methods that were not always orthodox or 'respectable'.

The example of the new wage-earners' fund foundations also shows that it is not easy to intervene (as some would have put it) in the traditional academic R&D system. Although the need for research funding in academia may seem endless (especially if you listen to a foundation officer like me), the input of new resources and its architecture were not always or universally applauded by academia itself. Over the years some critics have argued that the input of resources has led to an unhealthy unbalance between strategic and bottom-up initiated basic research. Such critics were most vocal from the mid-1990s until the mid-2000s, when government support for research and higher education was much affected by state budget problems.[5]

[4] F Wijkström and S Einarsson, *Foundations in Sweden: Their scope, roles and visions*, Stockholm, 2004; S Einarsson, FOREMAP pilot study, country report from Sweden, April 2009.

[5] Sverker Sörlin (ed), *'I den absoluta frontlinjer'*. Bokförlaget Nya Doxa, 2005; Mats Benner, *Kunskapsnation i kris? Politik, pengar och makt i svensk forskning*. SISTER och Bokförlaget Nya Doxa, 2009.

In my view, these studies, as well as some of the evaluations that have been made, clearly show that research funding by foundations has had a far greater influence on R&D than the size of their grants might suggest.[6]

Independence to innovate

Since 1992 I have had the opportunity of working in both the state research councils and the foundation sector as programme officer or head of department. In my capacity as researcher (social history), I have also been a member of peer-review panels. This experience has made it clear to me that foundations could play a different role in research funding compared with state research councils and agencies, and that foundations have the potential to make a greater impact than the scale of their grantmaking suggests. The keyword here is independence. In Sweden, a foundation is by law independent from the state with regard to its mission and management and is exempted (under certain conditions) from paying tax. The state (normally the ministry of research and the parliament) has no right to interfere in a foundation's grantmaking priorities. This is entirely a matter for a foundation's board of trustees, although it remains grounded in its statutes. In my experience this independence gives foundations the means to actively identify areas where new funding initiatives of different kinds are needed. But if a foundation aims to create an activist role, it has to select leading experts to its advisory boards and committees – including 'controversial' experts. By using highly qualified experts and (of course) scientifically trained staff, foundations can take the initiative in creating new programmes, etc.

Models to mainstream

Stiftelsen Riksbankens Jubileumsfond, where I work, is Sweden's leading private financer of research in the social sciences and humanities. The foundation has, for instance, initiated new types of graduate schools in the humanities and social sciences, which in time have established themselves as models for public funders. The foundation has also given major grants to research infrastructures, ie projects on standards and techniques for digitalization of collections in archives, libraries and museums. These projects focus both on preservation (and – in a modern sense – conservation) and on improving access (via the internet and other media) to extensive collections of rare and vulnerable types of material. The important role of research infrastructure for the humanities and social sciences has in recent years

[6] Bengt Stenlund et al, *Hinc Robur et Securitas? En forskningsstiftelses handel och vandal: Riksbankens Jubileumsfond 1989–2003*, Gidlunds förlag, 2004.

also been emphasized by public funders such as the European Commission. The foundation's independent role and, of course, its considerable economic resources have allowed it to be at the forefront of this research field. The foundation also showed a similar ambition towards innovation when three years ago it introduced a new (at least for Sweden) postdoctoral trainee programme for young PhDs in the humanities. This programme is designed to be a partnership involving both public agencies (archives, libraries and museums) and private businesses (mainly in the media sector).

New initiatives such as those described above could very well pave the way for new partnership opportunities with other donors, such as foundations, scientific academies, research councils, businesses and other enterprises. As the activities of Stiftelsen Riksbankens Jubileumsfond illustrate, a relatively small, perhaps risky, first grant can sometimes result in large, jointly funded research programmes, centres of excellence and postdoctoral programmes. To my mind, the research-funding foundations should aim to be at the forefront and to actively look for, or even initiate, new projects. It may be difficult, but in order to get greater value for money, foundations should avoid possible long-term engagement by using strict sunset or exit strategies in their funding schemes.

1.2.4 Foundations and the European research landscape: an Italian perspective

Marco Demarie

Scientific research and foundations are long-time bedfellows, dating back to as early as the 17th century, when Baroque scientific and learned academies combined features of foundations and associations. It was only in the age of modern American philanthropy that foundations started to devote themselves systematically to the support of scientific research. Scientific knowledge was seen as the basis for social change, enlightenment and progress, thus paving the way for the concept of 'scientific philanthropy'. Several world-renowned American research universities were heavily supported, and sometimes created, by philanthropists and philanthropic institutions. This tradition lives on today, not only in the US but also in Europe. However, each generation must examine the issues anew, and sometimes more than once. Science changes, society changes and foundations change.

European Research Area

The research landscape in Europe has witnessed many political and cultural changes in recent years. Important milestones were the 2000 Lisbon Strategy, aimed at developing the EU into the most competitive knowledge-based

economy in the world by 2010; and the 2002 Barcelona objective of increasing the European research effort to 3 per cent of the EU's GDP by 2010. Central to these objectives is the development of a European Research Area (ERA) to encourage researcher mobility and career advancement and to foster excellence in scientific research. At the same time, there has been a cultural transformation of the traditional university paradigm, coupled with sometimes serious organizational diseconomies and ineffectiveness, which are challenging the idea that universities are the most appropriate environment for research.

In the mindset of European research policy-makers, there seem to exist some 'European added values and goals', as far as the research sector is concerned. According to the Commission's documentation on the EU's Seventh Framework Programme for research and technological development (FP7), these are: establishing a 'critical mass' of resources; strengthening excellence through competition; and exercising a 'catalytic' effect.

Where do foundations fit?

Can such a goal set also be adopted by foundations in Europe? Are foundations ready to play roles around critical mass, excellence and catalytic effect? Should foundations finance researchers, projects or institutions? For example, the recently established European Research Council (ERC) indicated that funding Starting Independent Researcher Grants (providing support to 'promising researchers who have the proven potential of becoming independent research leaders') was the main priority of its launch strategy. In the same line, should foundations support science careers among young people, higher-education programmes, or mobility of scientists? Should foundations focus on basic research (which seems to be neglected for lack of public monies) or shift to applied and development research (which appears to be closer to socio-economic development goals)? Should foundations start up their own projects and laboratories? And, once established, should foundations continue to run them after the start-up phase? What is the role of 'model' projects? How long ought a foundation to stick to a single research sector?

Roles and visions

New wisdom on foundations and research in Europe shows that foundations have the aptitude and indeed mission to support unconventional, risk-taking, ground-breaking scientific research. Culturally and politically independent and certainly operatively flexible, foundations are likely to support scientific creativity in a more dedicated and (probably) efficient way than public agencies. To quote Wilhelm Krull, secretary general of the Volkswagen Stiftung: 'Where

public institutions are reluctant to encourage new ideas, private foundations have a special role to play.' The trend towards experimenting is also linked to some extent to the highly complex structure of the research landscape, which presents foundations with a whole new class of problems with which to cope. These 'cognitive asymmetry problems' can be related to the allocation choices that foundations have to make in a field with which they are not entirely familiar, or to the framework of the scientific community's incentive structure, which is dissimilar to their own. To overcome these kinds of problem, foundations often experiment, naively or consciously, with a wide range of working models.

In Italy, given the protracted financial crisis of the state and some structural weaknesses of a market sector largely composed of micro-units, it is obvious why foundations are asked – by the government, the market sector and the research institutions themselves – to help establish a critical and sustained mass of resources devoted to research. Indicators show that research in Europe lacks the momentum found in the US and Japan; research funding in Italy is well below the European average: therefore, much is still to be done in the field of financing.

Compensating for the lack of public and market resources for 'normal scientific research' is an important function. Foundations, however, are not limiting themselves to such a 'supplemental' (stopgap) role. In accordance with the 'special role' international experts entrust them with, foundations interested in scientific research seem to grow more and more aware that this wide spectrum of questions needs to be addressed, and that phrases such as 'excellence' and 'catalytic' effect are more than just buzzwords to be included in their planning documents. It is in this spirit that Wilhelm Krull commented:

> Their autonomy, alertness and flexibility enable foundations to operate effectively as facilitators of change, to establish islands of success, and thereby to achieve considerable impact on policy- and decision-makers. By fostering risky projects, encouraging networking across disciplinary, institutional, and national borders, and by helping some of the most creative researchers to break new ground, foundations are able to prove that even on a European scale small things matter.

Equally revealing is the observation made by Helga Nowotny, vice-president of the European Research Council:

> Innovation cannot be left to entrepreneurs alone. It is a hybrid including the availability of venture capital, and the creativity of determined individuals as much as the flexibility of institutions and regulatory processes. Technocracy is a widely dispersed, interlocking form of governance in which not only corporate

actors and governments, but also civil society, interact in a conflict-ridden struggle for the newly emerging global order.

Research foundations in Italy

In Italy, foundations with a specific commitment to scientific research belong to three categories. The first comprises foundations of banking origin, whose statutory set of goals, stated by law, contains science and technology. Several of these are extremely big players, some of which have created functional specialized organizations in the field, whether subsidiary foundations or even companies. The second category includes what are known as common-law foundations, mainly in the form of specialized fundraising foundations, which give money either to university taskforces or to laboratories, run their own projects, or even set up research centres. They are active almost exclusively in the area of biomedical research. A certain degree of strategic interaction or 'grantmaking with accompaniment' is common between this type of foundation and both researchers and research institutions. It should be noted that these foundations – of which the Telethon foundations are certainly the most famous – specialize both in fundraising activities, particularly involving the public, and in the effective management of research projects. Their expertise is indeed complex. The final category contains foundations established to 'host' specific research ventures and research projects and activities. They may be created in order to isolate organized research areas from unsatisfactory university arrangements and structures and/or to capture funding flows without their being intercepted by the university bureaucratic system. These foundations, generally devoid of any significant measure of endowment, are totally dependent on grants or contracts. Created by universities or research teams or associations, sometimes in cooperation with local authorities and private partners, they tend to be university research departments without a university, and often express a marked market orientation.

From questions to answers

It is hard to say to what extent Italian foundations have successfully moved from the phase of questions and serenely entered the time of answers. Nonetheless, it seems that the rather wide range of operational solutions that foundations are currently designing and implementing is only partly a sign of bewilderment and overload. It is also an adaptive and opportunistic strategy. The cocktail of functions includes managing project grants for research institutions; allotting general-purpose or equipment modernization grants; conducting thematic tender-based competition; sponsoring existing research centres; establishing

new centres in cooperation with universities or other parties; and developing more or less sophisticated and extended scholarship programmes.

There are other so-called 'auxiliary functions' that foundations can perform in order to improve the social, cultural and political environment of science and research. These are by no means minor or irrelevant, and they are particularly suitable to foundations' sensitivity. One such function could be to support the creation of 'science cosmopolitanism', by helping local scientific environments within Europe and the world to stay better connected to one another. Foundations could also design programmes intended to improve the quality of pupils' and students' scientific literacy, primarily but not exclusively in schools; to promote curiosity among the young for science, its history and its prospects; and to emphasize the importance of the scientific method in a time prone to recurrent waves of irrationality. Lastly, foundations can support the inclusion of the citizens of a European knowledge-based society in the research governance process, which, to a greater or lesser degree, is helping to invigorate the public discourse on the problematic issues of science and democracy, science and politics, and science and ethics.

1.2.5 Challenges of measuring Research and Development in Europe

Veijo-Ismo Ritola

Increasing investment in Research and Development (R&D) is one of the key objectives of the Lisbon Strategy. A substantial increase in investment in R&D is important in order to realize the European Research Area (ERA) and to provide a significant boost to the industrial competitiveness of the European Union.

In 2007 the EU27 (27-member European Union) spent 1.83 per cent of Gross Domestic Product (GDP) on R&D, compared with 1.84 per cent in 2006. R&D expenditure in the EU27 grew in nominal terms at an average annual rate of 4 per cent between 2001 and 2007, to reach €226 billion. Germany (€61 billion), France (€39 billion) and the United Kingdom (€34 billion) together accounted for almost 60 per cent of total R&D expenditure in the EU27 in 2007 (see figure 2).

Figure 2 R&D expenditure in EU, US and Japan, 2007 (2001, 2006)

	R&D expenditure (€ million)	*R&D intensity (expenditure as % of GDP)*		
		2001	*2006*	*2007*
EU27	**226,120e**	**1.86e**	**1.84e**	**1.83e**
Belgium	6,263p	2.08	1.88p	1.87p
Bulgaria	140	0.47	0.48	0.48
Czech Republic	1,955	1.20	1.55	1.54
Denmark	5,779e	2.39	2.48	2.55e
Germany	61,240e	2.46	2.54	2.53e
Estonia	174p	0.71	1.15	1.14p
Ireland	2,501p	1.10	1.30p	1.31p
Greece	1,311e	0.58	0.57e	0.57e
Spain	13,342	0.91	1.20	1.27
France	39,369p	2.20	2.10p	2.08p
Italy*	16,831	1.09	1.14	–
Cyprus	70p	0.25	0.43	0.45p
Latvia	126	0.41	0.70	0.63
Lithuania	233	0.67	0.79	0.82
Luxembourg	591p	–	1.66	1.63p
Hungary**	977	0.92	1.00	0.97
Malta	32p	–	0.64	0.60p
Netherlands	9,666p	1.80	1.71p	1.70p
Austria	6,946e	2.07e	2.46	2.56e
Poland*	1,513	0.62	0.56	–
Portugal	1,921p	0.80	1.00e	1.18p
Romania	653	0.39	0.45	0.53
Slovenia	529p	1.50	1.56	1.53p
Slovakia	252	0.63	0.49	0.46
Finland	6,243	3.30	3.45	3.47
Sweden	12,063p	4.17	3.74	3.64p
United Kingdom*	34,037	1.79	1.76	–
USA***	269,098p	2.75	2.65	2.67p
Japan*	118,295	3.12	3.40	–

* data for 2006 instead of 2007
** 2001: defence excluded
*** data excludes most or all capital expenditure

e estimated
p provisional
– data not available

Source: Eurostat; and OECD for USA, Japan

Definitions

The basic concepts and guidelines for collecting data and the classifications used in compiling R&D statistics are provided in the Frascati Manual.[7] R&D comprises creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications.

Two key statistical variables used when measuring R&D activities are R&D expenditure and R&D personnel. R&D expenditure refers here to 'intramural' expenditure, comprising all expenditure on R&D within a statistical unit or sector of the economy during a specific period, regardless of the source of funds. Intramural expenditures are normally broken down by institutional sector, ie the sector in which the R&D is performed: the business enterprise sector, the government sector, the higher-education sector and the private non-profit sector. Economic activity is another classification related to performing unit used for further analysis of the business enterprise sector (manufacturing, construction, trade, services, etc). Other relevant classifications are also often used, some of them unique to R&D surveys (type of R&D, fields of science).

Data collection in the EU

The range of statistics gathered includes statistics on human resources devoted to science and technology; governments' R&D budgets; patents statistics derived from the databases of the European patent offices; high-technology statistics; and statistics on enterprises' innovation activities. In addition, R&D statistics are collected within the institutions of the European Statistical System (ESS). The ESS forms an official infrastructure that provides statistical information for EU decision-making.

Compilation of EU R&D statistics is based on EU legislation. National data is collected by the national statistical institutions or equivalent ESS bodies and aggregated further by Eurostat (a department of the European Commission) at the level of the EU. Legislation and further recommendations are discussed within the ESS on the initiative of data-users and implemented on the parts found to be feasible and highly relevant for EU and national policy-making.

National data collection is focused on R&D performers across all institutional sectors and economic activities, ie it measures all R&D activities which have been undertaken within the reference year. The initial data is

[7] OECD (2002), Frascati Manual, *Proposed Standard Practice for Surveys on Research and Experimental Development*.

published at the EU level within one year of the end of the reference period and is gradually refined by different breakdowns in accordance with the requirements stipulated in the legislation (sector, activity, region, etc).

Foundations and measuring R&D

Since all R&D activities undertaken in a given country within the reference year are measured in the R&D expenditure and personnel survey, the R&D activities of foundations are also covered as a matter of course. This encompasses their R&D expenditure as well as their funding. R&D data collection is directed at R&D performers for information on their expenditure, but as their sources of funds are also identified, it is possible to construct a full matrix of R&D performing and funding sectors, including the private non-profit sector of which foundations are an element (see figure 3). However, even though they are covered in the EU R&D statistics, it is not possible to distinguish the R&D expenditure or funding of foundations. The classifications employed do not allow foundations to be detailed separately.

Figure 3 R&D expenditure in EU27 by sector of performance and funding (2005)

	Sector of performance				
Sector of funding	*Business enterprise sector*	*Government sector*	*Higher education sector*	*Private non-profit sector*	*All sectors*
Business enterprise sector	51.9%	1.1%	1.4%	0.1%	54.5%
Government sector	4.6%	11.4%	18.0%	0.3%	34.2%
Higher education sector	0.0%	0.0%	0.7%	0.0%	0.8%
Private non-profit sector	0.1%	0.2%	0.9%	0.4%	1.5%
Abroad (outside the EU)	6.8%	0.9%	1.1%	0.1%	9.0%
All sectors	63.3%	13.6%	22.1%	1.0%	100.0%

Because of rounding, the sums of sub-items are not necessarily equal to the totals shown.

Source: Eurostat

Institutionally, foundations belong mainly to the private non-profit (PNP) sector, but they may also be found in the government sector. The criteria used to classify units in the PNP sector include their function, aim, economic behaviour, sources

of funds and legal status. According to the definition used by Eurostat, these institutions may be financed by membership subscriptions or by donations from the general public, the government or corporations; they include professional or learned societies, charities, relief or aid agencies, trade unions and consumer associations. In other words, R&D within the PNP sector may include R&D other than that associated with foundations; and R&D associated with foundations may be found outside the PNP sector.

When it comes to economic activity, the situation is even more difficult. The classification that is currently used does not identify foundations even at its most detailed level. The nature of the classification is such that foundations are 'distributed' according to their main economic activity: health, medicine, education, charity, etc.

The situation is no different from other official statistics. The contribution made by foundations to employment or to any other socio-economic variable is measured in the relevant context, without, however, there being any possibility of singling out their particular share. As explained above, this is a consequence of the underlying classifications, which do not identify foundations separately.

Future plans

Interest in statistical data in the area of R&D is constantly increasing. Globalization, networking and the growing importance given to monitoring the functioning of the European Research Area have increased the need for systematic measurement of the joint programming of R&D, the contribution and details of the sector 'abroad' (ie outside the EU), and the direct contribution of the EU's institutions and its various bodies to EU R&D.

2 Findings on research foundations in the pilot countries

2.1 Germany: exploratory overview of research foundations

Karolina Merai

2.1.1 Contextual background

Historical background

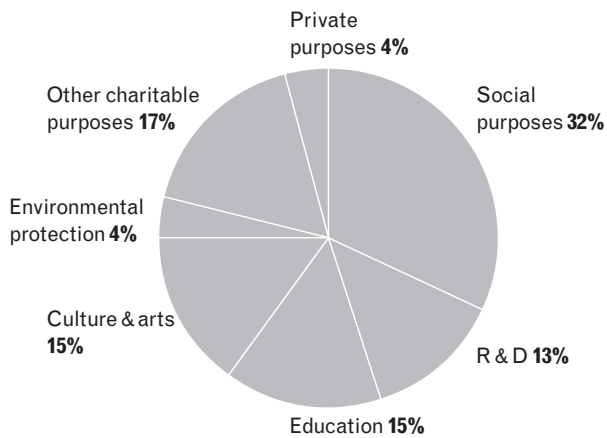
The tradition of foundations in Germany goes back about a thousand years. Foundations are among the earliest instruments of civil activity and private commitment for the common good. Already in medieval times the first foundations existed in Germany. At that time it was mainly the churches that established foundations with social, charitable and religious purposes in order that they could use such structures to accomplish their Christian missions sustainably. These foundations were often providers of charitable institutions such as orphanages and hospitals. During the 19th century foundations in Germany experienced a period of prosperity. A lack of social systems provided by the state during the early years of the industrial period encouraged the (aspiring) middle class increasingly to take on responsibility. By 1900 the number of German foundations had reached a total of more than 100,000. During the 20th century, foundations in Germany had to endure much hardship. Two world wars, inflation and monetary reforms, the Nazi dictatorship, the socialist system in Eastern Germany: all contributed to an erosion of foundations' assets and the consolidation, liquidation or nationalization of foundations. This resulted in a dramatic reduction in the number of German foundations by the middle of the 20th century. A renaissance of the foundation concept in West Germany

began only during the 1980s and has lasted until today. Since then a consistent increase in the number of foundations established has been noted.

Foundation landscape

At the end of 2008, there were 16,406 foundations under civil law in Germany. In the past nine years more foundations have been established than during the previous 51-year history of the Federal Republic of Germany. With the 2007 Act for the Further Strengthening of Civic Engagement (*Gesetz zur weiteren Stärkung des bürgerschaftlichen Engagements*), Germany has taken a top rank among the most 'foundation-friendly' states in Europe. Not only have more foundations been established in Germany, but also an increasing amount of capital has been invested in existing foundations. Foundations' assets in Germany are estimated to amount to a total of €100 billion. This figure does not include the predominantly small trust foundations for which data is not available, the total number of which is estimated to be much higher than 20,000. Church foundations, of which there are presumably far more than 30,000, though information is lacking here as well, are also not included in the above figure. Facts and figures about the German foundation sector are updated annually by the Association of German Foundations (Bundesverband Deutscher Stiftungen) and published in several publications including the *Stiftungs Report* and the *Verzeichnis Deutscher Stiftungen*.

Figure 4 Breakdown of German foundations by area of activity



Source: Bundesverband Deutscher Stiftungen 2009

Disclaimer: the figures cover only the surveyed foundations.
n = 10,759 foundations

German foundations have long been engaged in the field of promotion and development of education and research. More than 13 per cent of the 16,400 foundations that are legally responsible under civil law dedicate their resources to this area. In total, some 2,700 foundations of various legal forms that promote education and research are known to the Association of German Foundations. It can be assumed that a similar number of trust foundations are also active in this area.

Among these 2,700 foundations, there are 2,220 promoting young scientific and artistic talent, and 820 foundations that support a specific university by statute. Universities receive more than €276 million annually from foundations, and 19 German universities are run by foundations. More than 600 professorships at German universities and universities of applied sciences are funded by foundations.

Institutional support of private think-tanks is not yet common among German foundations. However, German foundations have found different ways of promoting think-tank initiatives, including the financing of studies with a wide appeal and projects that gather experts and politicians around the same table. Funding research studies conducted by think-tanks complements traditional foundation activities such as giving grants and prizes.

Legal and fiscal framework

In Germany there is no legal definition of the term 'foundation'. Rather, it serves as a label for a number of different legal constructs; it is more a generic term comprising a complex variety of corporate and legal structures which can be based on private, public or ecclesiastical law. The typical foundation is a legally responsible foundation under civil law. This type of foundation is the classical instrument for the achievement of a permanently defined purpose. It is subject to the supervision of the respective state authority for foundations. A foundation is characterized as a sum of assets dedicated on a long-term basis to a specific purpose, particularly a charitable one.

Science and science funding in Germany

Germany is a country with a long tradition of science and research. In 1990 it faced the unprecedented challenge of merging the East and West German research sectors, to give rise to the research powerhouse it is today.

Research funding in Germany has remained stable over recent years. In 2007 Germany spent €61.2 billion on R&D, equivalent to 2.53 per cent of GDP.

The country's investment in R&D is significantly higher than the EU average of 1.83 per cent of GDP.[1]

There are three key drivers of German research. At the public level research policy and funding are the responsibility of the federal government and the 16 regional *Länder* governments, both of which have joint responsibility for science and research. The key federal ministries supporting research are the Ministry of Education and Research (BMFB)[2] and the Federal Ministry of Economics and Technology (BMWi),[3] which mostly funds innovation-related initiatives. Other ministries allocate their own research funding for programmes that relate to their sphere of responsibility. They include the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, and the Ministry of Defence. The share of public funding between the federal government and the *Länder* is relatively well balanced, with 55 per cent of federal funding and 45 per cent of *Länder* funding.

The German Research Foundation (DFG)[4] is responsible for distributing a large part of public competitive funding. The DFG is a majority publicly funded private membership association and serves all branches of science; its budget for 2007 was €1.7 billion,[5] of which just under €1 billion came from federal funding and €0.6 billion from the *Länder*.

Industry is the third driver of research in Germany, contributing around two-thirds of GDP spending on research in the country. The key industrial sectors funding research are:

- the automotive sector, accounting for over 40 per cent of industrial R&D;
- the IT, electrical and office equipment sectors, representing 19 per cent;
- the chemical industry, representing 17 per cent;
- machinery and tools, representing 9 per cent.

Internal spending accounts for 92 per cent of industrial research funding, with the remainder being undertaken in universities and institutes.

In addition to research undertaken in-house by Germany's industrial sector, research in the country is undertaken in:

- 345 higher education institutes (including 183 universities of applied sciences), forming the backbone of the German research landscape;

[1] Eurostat R&D statistics for 2007.

[2] Bundesministerium für Bildung und Forschung.

[3] Bundesministerium für Wirtschaft und Technologie.

[4] Deutsche Forschungsgemeinschaft.

[5] DFG accounts for 2007.

- four research and technology organizations (Max Planck Society, Fraunhofer-Gesellschaft, Helmholtz Association of German Research Centres, Gottfried Wilhelm Leibniz Science Association), which have a combined workforce of 63,500 researchers and support staff in 239 laboratories/institutes/centres, with a combined budget of some €4.6 billion;
- federal and *Länder* research institutes carrying out research related to the mission of their supervising ministries.

Main funders

A breakdown of expenditure shows that industry accounts for two-thirds of the country's total spending on R&D. This is spent by companies on their own initiatives as well as on initiatives conducted by third-party research centres and universities.

The federal government and *Länder* have shared responsibility for financing research and teaching at the public universities in their respective regions. Non-university research institutes are also jointly financed.

Public funding is distributed mainly via the German Research Foundation (DFG), which is the central public funding organization responsible for promoting research in Germany. Its activities focus on funding research projects carried out by scientists and academics working at universities or research institutes and on selecting the best projects in a process of fair and transparent competition. The work of the DFG serves all branches of science and the humanities, reflecting its role as the self-governing organization of German science and research. Its legal status is that of an association under private law. DFG membership is made up of German universities, non-university research institutions, scientific associations, and the Academies of Science and Humanities. The DFG receives its funding from the federal (*Bund*) and state (*Länder*) authorities, which are represented on all decision-making bodies, while scientists and academics hold the majority.

Strengths

Germany has the largest population of R&D personnel in Europe and is the world's third-largest 'country of researchers'.[6] In 2007 there were an estimated 406,253 R&D personnel working in Germany, 272,148 of whom were full-time employees. In the same year, just under 12,000 German inventions were patented throughout Europe, meaning that a fifth of all European patents were based on developments made by German scientists. The companies Siemens, Robert

[6] German Academic Exchange Service (DAAD).

Bosch and BASF figure in the top ten of the most active applicants to the European Patents Office (EPO) in 2007.

Challenges

In 2007 a report was published by the Federal Ministry of Education and Research which highlighted some of the future challenges facing research policy.[7] These included:

- encouraging more partnerships between companies, in particular small and medium enterprises (SMEs) and research-operating organizations (universities and institutes), in order to encourage more innovation;
- developing tax and financial incentives for companies investing in R&D in line with the recent reform of the law on the taxation of companies;
- addressing the imminent shortage of skilled personnel, especially in engineering, which should be tackled through education (encouraging take-up of scientific studies at school and university) and by opening up to foreign researchers.

2.1.2 FOREMAP survey: main findings in Germany

The FOREMAP mapping exercise in Germany gathered a sample of 86 research foundations, selected from the top 100 foundations according to expenditure. The data below is gathered from the 33 foundations that responded to the survey. This represents only a very small part of the sum total of foundations that either operate or support research projects. However, all the funders included in the German survey expend a substantial amount on research programmes or grants.

Funding R&D

The 33 foundations surveyed through FOREMAP in Germany reported total assets of €18.398 billion and expenditure of €1.221 billion.[8] The research expenditure of the surveyed foundations amounts to around €749 million,[9] which represents 63 per cent of total expenditure. It is important to note that the five biggest-spending foundations accounted for nearly two-thirds of the total expenditure. The majority of the surveyed foundations (76 per cent) rely on their own endowments as a source of income; a third of them also draw on government funding.

[7] *Bericht zur technologischen Leistungsfähigkeit Deutschlands 2007*.

[8] These figures include two foundations with different reference dates: 2008 (€51,129,190) and 30 September 2007 (€22,900,000).

[9] This figure includes two foundations with different reference dates: 2008 (€51,129,190) and 30 September 2007 (€22,900,000).

Of the 33 foundations surveyed, the greater part (15 out of 33) support research through a combination of operating and grantmaking activities, while the other 18 foundations are equally divided between grantmaking only and operating only (9 each). The majority of the foundations have a specifically research-dedicated programme (19 out of 33, or 58 per cent), while 27 per cent (9 out of 33) fund or operate research as a transversal programme, and 15 per cent (5 out of 33) do both.

The predominant funding mechanisms to support research used by the surveyed foundations are mainly grants (23 foundations), followed by own programming costs (15 foundations) and awards and prizes (14 foundations).

The surveyed foundations' expenditure has evolved positively overall, compared to the previous accounting year (2006). Forty-one per cent of the surveyed foundations had increased their expenditure in supporting research, compared to 2006; 31 per cent of the respondents mentioned that research expenditure had decreased; and 28 per cent said that it had remained the same.

Among the reasons given for an increase in research expenditure were higher income, implementation of new areas of operation, and an increasing number of applications and projects. In contrast, the reasons given to justify a decrease in expenditure included the current income situation experienced by the surveyed foundations, a reorientation of funding strategies and priorities, and cuts in public funding.

The foundations surveyed direct the majority of their expenditure (58 per cent, or €400 million) to support research projects at regional level. The high percentage of regional-level funding might be explained by the fact that foundations in Germany are regionally bounded. Thirty-one per cent of research expenditure (€200 million) is channelled into national projects, 10 per cent (€68 million) into international projects, and 1 per cent (€8 million) into specifically EU-level projects. It is noteworthy that, while funding recipients may be located within regional or national borders, the research projects being supported often have a wider geographical scope that goes beyond these borders.

Eighty-eight per cent of the surveyed foundations, which include some of the biggest research funders in the country, believe that there are no obstacles to funding beyond national borders. However, those that did mention the existence of such barriers refer mainly to legal and fiscal obstacles.

Science crosses borders and research has become increasingly international in recent years. A narrow focus on national issues would hinder rather than help to produce useful research results. Foundations strive to achieve a maximum social benefit with their activities, and in many scientific

fields this may require allocation of funds across borders, for example when certain outstanding projects or scientists are located abroad. At the same time, it is expected that German research can benefit from a stronger international orientation by supporting and participating in projects abroad.

Incentives for cross-border funding are not apparent. On the contrary, foundations in Germany feel that there are barriers of various kinds. First of all, with regard to international funding measures, there are much stricter reporting and documentation obligations than for national sponsoring. Secondly, there is a call in Germany for tax deductibility to apply to private donations to science foundations abroad – a concession that exists in the Netherlands, for example, and which is required by EU law (free movement of capital).[10] Fiscal regulations, as well as often difficult local conditions, represent barriers of varying degrees. Clearly there are additional obstacles related to logistics and to the allocation of funding to programmes abroad.

Especially for small and medium-sized foundations with limited personnel, major efforts are required in order to acquire knowledge of regions where they want to launch activities, to design promotion programmes that are appropriate and correspond to the needs of the target group, to create awareness of those programmes on site, and to competently manage the projects themselves. Here international foundation networks can be of great help.

Research areas

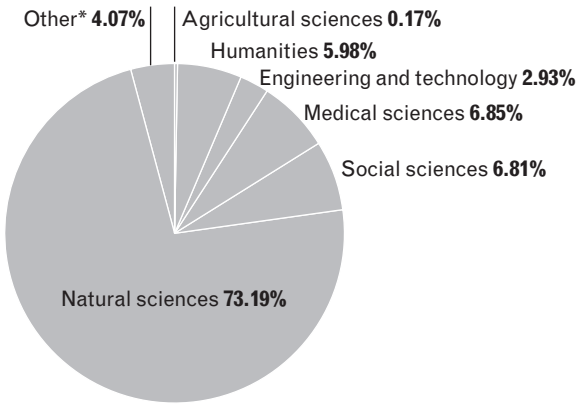
The total research expenditure of the surveyed foundations amounts to €749 million. Seventy-three per cent of this expenditure is allocated to the field of natural sciences, but it should be noted that half of this figure is accounted for by one of the very biggest research foundations in Germany. This area is distantly followed by the fields of medical sciences (6.9 per cent), social sciences (6.8 per cent) and humanities (6 per cent).

The great majority of the foundations surveyed fund a mixture of both basic and applied research (67 per cent). Only a small number of foundations fund basic research only (12 per cent) or applied research only (21 per cent).

Of those surveyed foundations that have a dedicated programme on research, the most common area to support through these programmes is infrastructure and equipment, followed by researcher mobility and career development.

[10] See the recent much-discussed decision of the European Court of Justice in the Persche case.

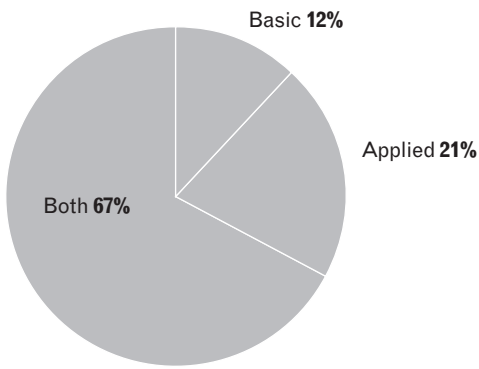
Figure 5 Breakdown of German research expenditure by field of support (2007)



Disclaimer: the figures cover only the surveyed foundations. n = 32

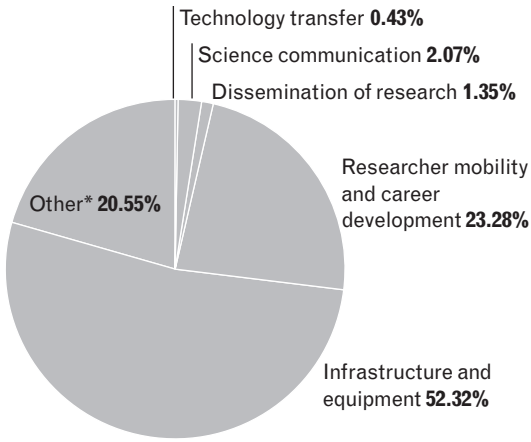
* Category 'other' includes: interdisciplinary research; law.

Figure 6 Breakdown of German foundations by type of research supported (2007)



Disclaimer: the figures cover only the surveyed foundations. n = 33

Figure 7 Breakdown of German research expenditure by research-related activity (2007)



* Category 'other' includes: research projects/prizes/awards; research promotion of universities/ foundation professorships; project partnerships that facilitate other categories.

Disclaimer: the figures cover only the surveyed foundations. n = 30

Motivation and roles

Motivation The experts interviewed agree that for the general choice of a foundation's profile the founder's background is the decisive factor. The founder may, for instance, be a private science-related person, such as a scientist; an entrepreneur from an R&D-intensive sector; or a research company, among others. However, contemporary historical circumstances can also influence the decision concerning the establishment of a foundation for the promotion of research. This is likely to result in a fairly uneven spread of research topics selected by different foundations. For private donors, medical topics are over-represented, mostly for reasons of personal involvement. This is probably why cancer research is by far the leading field of research, although a significant amount of public funds is also allocated to this sector. Corporate foundations typically aim to promote specifically those scientific sectors that are relevant to the business or industry they are operating in. The sectors that are promoted are thus rarely chosen on the basis of the actual demand for research prevailing in the respective field or as a response to a lack of funding from public sources.

For foundations promoting research, the limited amount of funding available is also a factor encouraging concentration of resources on specific research areas or activities. Only very large foundations are able to distribute funds across disciplines as public sponsors do and still act beneficially. For

small and medium-sized foundations, focusing on particular areas helps to build their profile, to bring maximum benefit to the niche they are active in, to build up structures, and to gain awareness among the relevant contacts within the respective target groups. Finally, logistical factors also play a role. The creation of networks and systems for the professional assessment of project proposals costs foundations time and money. Smaller foundations with limited funds act primarily in areas where the large promoters are not active. They support, for example, the general requirements and structural frameworks that are needed for successful research, such as supporting very young talent at the education–research interface, and thus contribute to the strengthening of Germany as a research country.

Regarding state measures that might act as a motivation for establishing a research foundation, in general the Federal Republic of Germany supports the establishment of charitable foundations. On 21 September 2007, the German Federal Council passed the Act for the Further Strengthening of Civic Engagement (Gesetz zur weiteren Stärkung des bürgerschaftlichen Engagements). This brought about significant improvements in the fiscal environment for founders and foundations.

The government supports the promotion of science and research in various ways. The promotion of science in education and research is a recognized charitable purpose according to fiscal legislation. Therefore foundations enjoy substantial tax reliefs. Donations to science foundations and to universities bring tax relief to the donor. Often the government contributes to private science promotion measures through the provision of additional financial means.

A further way to mobilize private capital is the establishment of partnerships between private and public institutions (public–private partnerships, or PPPs). In Germany, the government partly fulfils its role as sponsor of science through the endowment of large public sponsors. The German Research Foundation (Deutsche Forschungsgemeinschaft),[11] with an annual budget of €1.7 billion, and the German Academic Exchange Service (Deutscher Akademischer Austauschdienst), with a budget of €280 million, are commendable examples of public investment in research and science.

For cooperation between government departments and private foundations with regard to the promotion of science and research, reduction of bureaucratic barriers and joint utilization of infrastructure are important measures. If the government encourages dialogue rather than seeing

[11] Not a foundation in spite of its name, but the central public funding organization for academic research.

foundations as competition, charitable projects get stronger, more innovative and effective on a wider scale. The government also promotes public visibility of foundations. Examples include initiatives such as the Year of the Humanities (Jahr der Geisteswissenschaften) and the associated readiness to introduce foundations' work to a large public audience. The willingness of politicians to become patrons of foundations' initiatives or to bring attention to foundations' projects on trips abroad are further important tokens of a productive cooperation between the public and private sectors.

Roles The majority of the surveyed foundations (79 per cent) believe that their main role in funding research is to provide innovative ways of funding and conducting research. Additionally, a large proportion of the respondents (64 per cent) see themselves as fulfilling a role that is complementary to that of the state and other actors in supporting the research arena. Forty per cent of the surveyed foundations also feel they have a role as promoters of research policy change. However, some of them feel they should do nothing to encourage policy-makers since they should remain free and independent.

In Germany foundations have long been important sources of stimulus for education, science and research. Their importance in this respect is growing as government funding is reduced, which partly explains why 64 per cent of foundations believe they have a complementary role to that of state research funding. They see their own strengths primarily in their independence, sustainability, diversity in terms of contents, promotion of innovative research, and flexibility. They purposefully fill niches and thus provide an opportunity to those scientists whose research topics do not resonate with public sponsors. This could also be explained by the belief expressed by the majority (79 per cent) of the respondents that their role in the research arena is to encourage innovative research activities. Since they are independent of voters and shareholders, foundations are able to be active in areas where political and economic actors are not willing to provide funding. A foundation is able to invest in high-risk projects and thus to contribute to the promotion of insights and innovations that are urgently required. However, foundations do not think of themselves as 'gap-fillers'; they do not want to fill in where the government dodges its responsibility. Foundations are thus fairly reticent when the government tries to define core areas to be promoted or to make recommendations to foundations as to where to focus their activities and support.

Other actors' perceptions of foundations can be very different depending on the project concerned, ranging from positively supportive to indifferent or even disapproving. From a government point of view, the function of foundations

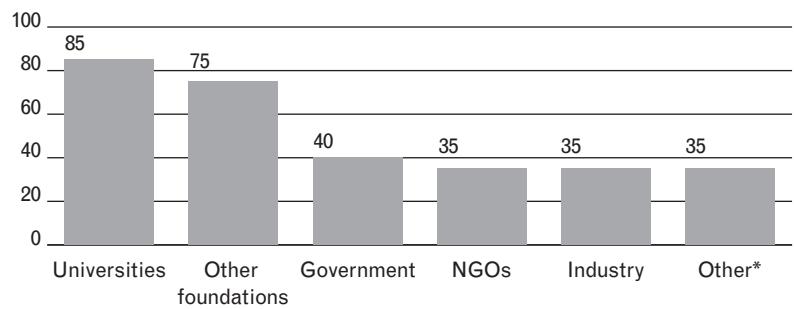
is to cover parts of the research system that remain uncovered. With their endowment, private funds are not only spent in support of public scientific purposes; they also enable initiatives that could not otherwise have been realized and that are necessary for the further development of society.

Foundations need to find niches to operate in. Because of the large volumes of funding required, only a few foundations are able to make a significant quantitative contribution in research areas such as medicine, natural sciences and engineering (in Germany, the Volkswagen Foundation and a few other large foundations are notable in this respect). Foundations often try to identify new fields of research that have so far been overlooked by government programmes. However, in practice this is a very challenging task.

Relations between foundations and other stakeholders

The majority (63 per cent) of the German foundations surveyed engage in joint research activities with other stakeholders. The most common partnerships are with universities (85 per cent of surveyed foundations), followed by other foundations (75 per cent).

Figure 8 Relations between German foundations and other stakeholders (2007) (%)



* Category 'other' includes: research institutions, trade unions and European Commission.

Disclaimer: the figures cover only the surveyed foundations. n = 20

The main reasons given for foundations to engage in such partnerships are meeting common goals and addressing new challenges (90 per cent of the surveyed foundations), pooling expertise and sharing infrastructure (85 per cent), increasing impact (80 per cent), and leverage funding (70 per cent).

Increasingly, foundations are starting to move away from working in isolation and towards actively seeking cooperation partners in order to

optimize the pursuit of their goals and extend the reach of their work, to combine resources and skills, and to achieve a better result overall than any single foundation could achieve on its own. Experiences are positive in most cases and the effects are greater than the sum of the single investments involved.

However, in many partnerships the question of visibility of the single actors might present an obstacle. Many foundations have found it to be essential to establish in advance clear rules regarding responsibilities and consistent external presentation, among other details. Disadvantages are primarily the differing decision-making cycles and processes and the resulting delays. Also, different motivations to do the same thing can cause a loss of efficiency in the coordination process.

Innovative funding

Foundations promoting research in Germany act primarily as pioneers and providers of stimuli. In the case of support for young scientific talent, for instance, the first postgraduate programmes, which have since become an integral part of German Research Foundation (DFG) funding, were financed by foundations promoting research. The establishment of the Emmy Noether Programme, now part of the DFG, also followed on from the successful promotion of talent through foundations. Science promotion through foundations also includes contribution to structuring the university landscape through foundation professorships – the Donors' Association for the Promotion of Sciences and Humanities in Germany (Stifterverband für die Deutsche Wissenschaft) funds more than 200 such professorships – and the creation of significant pilot research projects.

Other particularly successful projects of science promotion named by the experts are:

- The Euroscience Open Forum (ESOF), a European science platform primarily sponsored by foundations.
- Wissenschaft im Dialog gGmbH (Science in Dialogue), an institutionalized PPP for the improvement of communication in science.
- Bucerius Law School. With the establishment of Germany's first private law school, ZEIT Stiftung Ebelin und Gerd Bucerius has set a new and successful course for the education of young lawyers in Germany.
- The Best Practice Competition of the Stifterverband (Donors' Association for the Promotion of Sciences and Humanities in Germany). This initiative identifies areas with greater potential for development within the university sector (eg human resource management and quality management), invites universities to present particularly

successful concepts in various fields, and finally awards a prize for the best-practice model, which is selected by a jury consisting of representatives from industry, science and politics.

- Library Initiative for Central and Eastern Europe: 'People and Books', supported by the Federal Foreign Office, Goethe Institut, German Research Foundation, Fritz Thyssen Stiftung, Hertie Stiftung, Gerda Henkel Stiftung, Marga and Kurt Möllgaard Stiftung, Robert Bosch Stiftung, ZEIT Stiftung Ebelin und Gerd Bucerius.
- The German Historic Institute in Moscow, supported by the Foundation of German Humanities Institutes Abroad, ZEIT Stiftung Ebelin und Gerd Bucerius, Alfried Krupp von Bohlen and Halbach Stiftung.
- Foundation Initiative Johann Gottfried Herder, supported by Hertie Stiftung, Robert Bosch Stiftung, Donors' Association for the Promotion of Sciences and Humanities in Germany, German Academic Exchange Service (DAAD), Hochschulrektorenkonferenz (HRK) (German Rectors' Conference). This initiative aims to place German professors (emeritus) from all disciplines in foreign universities worldwide, thus promoting the establishment of international networks and knowledge transfer.
- Pro Humanities, created by Fritz Thyssen Stiftung and Volkswagen Stiftung, in cooperation with Zeit Stiftung Ebelin und Gerd Bucerius and the Donors' Association for the Promotion of Sciences and Humanities in Germany. Its aim is to emphasize the importance of social sciences and the humanities.
- Gerda Henkel Award, an international research award of the Gerda Henkel Stiftung, endowed with €100,000 for outstanding academic achievements in the humanities focusing on history.

Looking to the future

When looking to the future of German foundations in supporting research, it is important to note that 44 per cent of the survey respondents expected to increase their funding for research in the next accounting year (2008). Only 19 per cent expected to decrease their research funding, while the rest (37 per cent) expected to maintain their level of research funding.

Foundations that expected to increase their research funding suggested that a rise in research expenditure would be justified by increases in funding large-scale projects, strengthening of funding programmes, general increases in costs, and a higher number of applications allied with an expected rise in quality. Foundations were unanimous in suggesting that a fall in income would

be the main cause of their expected decrease in research funding in the next accounting year.

On a policy level, some of the German foundations interviewed believed that they should not try to influence policy change as it would conflict with their independence. However, most of the surveyed foundations emphasized the importance of the reduction of bureaucratic barriers and the joint utilization of infrastructure in stimulating cooperation between government departments and private foundations in the promotion of science and research. Foundations felt that greater dialogue between the government and foundations would discourage the view of foundations as competitors and would strengthen charitable projects and make them more innovative and effective on a broader scale.

Furthermore, there was a general feeling among the foundations interviewed that there should be greater cooperation between public authorities and foundations, rather than a feeling of competition. These two actors should complement each other, rather than filling gaps, and regard research as a common goal. Respondents suggested that political acknowledgement of foundations' contribution to research, as well as stronger communication to the public of the activities and research topics supported by foundations, would increase funding for research at regional level and motivate further developments. Foundations expressed the view that there is a need to reform the law relating to foundations and taxation and to reduce the bureaucracy regulating cooperation between foundations and other actors.

Additionally, it was suggested that the creation of networks among foundations, universities, research institutions and public authorities, allied with a reduction in bureaucracy, would stimulate foundations to fund research regionally. For example, the respondents felt that reducing the administrative effort currently required in coordinating dealings with universities and increasing the possibilities of incorporating foundations' professorships into universities' budgets would probably increase the establishment of such professorships.

Other improvements suggested by the interviewed foundations that would encourage regional research funding by foundations included: improving tax deductibility; encouraging voluntary activities by politicians on behalf of foundations; increasing funding for foundations under public law; fostering a welcoming attitude towards foreign students and guest scientists; and significantly improving infrastructure and general conditions in the research arena. The interviewed foundations also mentioned that it was necessary to prevent foundation funding leading to a reduction in public financing.

On a national level, most of the surveyed foundations indicated that they wanted the ban on endowment to be repealed. The ban on endowment refers to the fact that in Germany it is forbidden for foundations to give money to the capital stocks of other foundations – an issue that is currently a central topic of discussion in the German foundation community. Additionally, these foundations felt that the knowledge and expertise available in important public authorities' departments needed to be enhanced. Respondents mentioned the importance of the establishment of PPPs and of matching funding models. It was also suggested that research and science should be better advertised and the level of national awareness improved.

Additional improvements that would work as an incentive for foundations' support of research at national level included: promotion of alternative scientific approaches; creation of incentives for donations to research; increased government funding for foundations; and removal of sales tax pitfalls.

On supporting research across borders, the foundations interviewed felt the government could provide stronger incentives, particularly in areas where the science landscape is less well developed than in Germany. The government could, for instance, make funding of activities abroad with donations easier; international cooperation among foundations could be facilitated; and procedures and general legal and financial conditions for the realization of international project proposals could be simplified.

The interviewed foundations emphasized that the creation of a European Foundation Statute would facilitate research funding across the EU and would lead to crucial international developments in this area. Also, in the view of the surveyed foundations, an EU-wide recognition of charitable purposes in terms of tax law and harmonization of a common European Foundation Policy and Foundation Law would help greatly.

More broadly, foundations felt that their research funding beyond the EU would increase if there was an extension of international matching grants and international acknowledgement and strengthening of cooperation among foundations.

2.1.3 Applying the methodology

For this mapping exercise in Germany, a ranking of the top foundations by expenditure was used in order to identify the sample. From this ranking 86 foundations were targeted, 33 of which responded. This high response rate (38 per cent) indicates an overall acceptance of the survey and was also due to the use of a cover letter signed by a high-profile research foundation representative

(Dr Wilhelm Krull of the Volkswagen Stiftung). This gave the survey higher visibility and provided endorsement.

All in all, the procedure for selecting the sample from the top 100 foundations ranked according to expenditure, the questionnaire, and the reporting guidelines were well suited for application to the German foundation landscape in the area of science and research. Regarding the fields of research and research activities, the only problem was that of differentiation between social sciences and humanities. In the German context, the distinction here should either be clearer or not be made at all. Additionally, a specification of the legal form of the target foundations would facilitate the application of the survey in the diversified German foundation landscape. In Germany, numerous financially strong foundations under public law are active in the area of science and research, mostly operating as independent research institutes. Many of these did not feel addressed by the study and thus declined to participate.

Also needed was a clearer definition of the concept 'foundation promoting science' and of the criteria to determine which foundations fall under this category. Here, criteria that go beyond the purposes formulated in the statute needed to be established. Science and research is often a cross-cutting issue (it is also found in the education sector), and especially those foundations that promote this area with comparatively small budgets often did not feel they were part of the appropriate target group and were afraid to distort the results by their participation.

Regarding 'financial data', in some cases its collection is difficult because foundations are unable to provide such detailed data without an extensive research effort. In addition, many projects from the education area are also science projects; these, however, are assigned by statute to the area of education and are thus not considered among the annual expenses for science and research.

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Dr Ingrid Hamm, managing director of Robert Bosch Stiftung

Dr Michael Hanssler (managing director) and Dr Anna-Monika Lauter, Gerda Henkel Stiftung

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Prof Dr Andreas Schlüter, secretary general of Stifterverband für die Deutsche Wissenschaft

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2.2 Portugal: exploratory overview of research foundations

Raquel Campos Franco and Inês Seixas Duarte

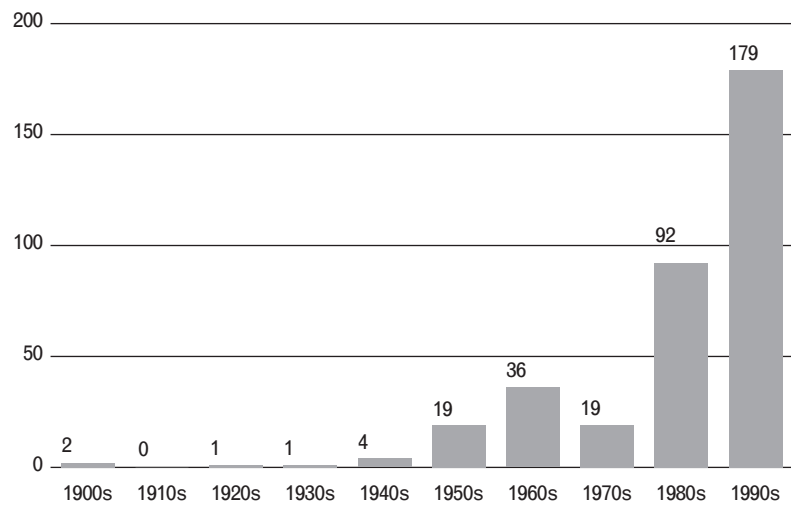
2.2.1 Contextual background

Historical background

The Portuguese foundation subsector is relatively recent in comparison with other third sector subsectors, especially considering the fact that Portugal has a strong tradition of support through institutions linked to the church, whose origins date back at least to the founding of the country in the 12th century. Also, the Santas Casas da Misericórdia (Holy Houses of Mercy) – a special type of organization that formerly had links with the church and the monarchy and is now in the hands of civil society – have a history that dates back more than 500 years. The first Civil Code to make reference to the new legal form of 'foundation' was published in 1867 (Franco 2005b).

The number of new foundations created was very small until the middle of the 20th century, when the number rose significantly. This new dynamic, however, slowed down during the 1970s, which was a turbulent time in Portuguese history. In the 1980s there was an upsurge in the creation of new foundations, and this continued during the 1990s, with 179 new foundations created in that decade.

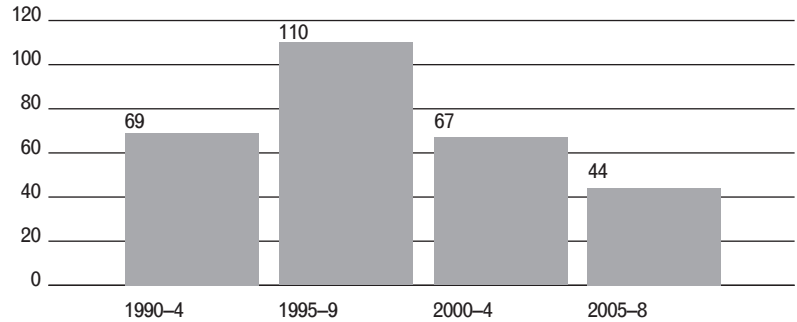
Figure 9 Number of new foundations in Portugal by decade



Source: PCM database and CPF 1996

Looking at the data from 1980 onwards in greater detail, it is possible to pinpoint the period from 1995 to 1999 as the four-year period with the highest number of new foundations created.

Figure 10 Number of new foundations in Portugal, 1980–2008



Source: PCM database and CPF 1996

Foundation landscape

Information about the foundation sector in Portugal is still very scarce, but what is known is that it is relatively small in number compared with other subsectors of the third sector. It is nevertheless an important part, especially when we consider the high level of total assets and annual budgets of the bigger foundations, among which the Fundação Calouste Gulbenkian plays a distinctive role. Foundations are part of the Portuguese non-profit sector. The expenditure of the non-profit sector represented 4.2 per cent of Portugal's GDP in 2002 (Franco 2005a).

There is very little systematized knowledge about the foundation sector in Portugal, since there is no entity with a complete and updated list of Portuguese foundations. A survey on the foundation sector conducted in 2000 remains to date a one-off initiative; it had as reference a list of 800 foundations (from the list held by the Ministry of Internal Affairs, the body responsible until 2007 for recognizing new foundations) and resulted in 150 responses (Barros and Santos 2000). Although it contained questions about foundations' support for R&D, the results presented are not enough to draw conclusions. Moreover, the survey presents itself as a pilot study and discourages any attempt at generalization. Therefore its results are not included here.

Legal and fiscal framework

Public utility is a fundamental legal concept in the non-profit sector. Private collective bodies of public utility refer to private-law associations and foundations that pursue non-profit aims of general interest and which cooperate with the central or local administration (public entities), in such a way as to earn the designation 'public utility' (art. 1 Law Decree n. 460/77, 7 November). Entities with this statute can apply for certain tax benefits.

A first distinction that must be made when considering foundations is between private and public foundations (Macedo 2001). The latter are part of the public apparatus, and are therefore not included in the non-profit sector and lie outside the scope of the FOREMAP project.

Public foundations are created on the initiative of, and act in accordance with, their supervising administrative power, through a legislative process and with public resources, for the attainment of public interests. Private foundations are collective bodies instituted by a private juridical act of designation of a certain endowment (goods or rights) considered sufficient to guarantee the accomplishment of the purposes inscribed in the statutes, with a limited or perpetual timeframe.

Private foundations are usually created through a public deed (although it is also possible through a legislative act, eg Fundação Calouste Gulbenkian), and they too must pursue public interests. Indeed, according to the Portuguese Civil Code, foundations in Portugal must be of 'social interest' (art. 157) or of public interest, which means that the legal framework does not admit the existence of foundations of private utility, exclusively dedicated to the interests of a person or family.

Although the Civil Code underlines the fact that foundations must be created with an endowment which is considered sufficient to ensure that the purposes inscribed in the statutes can be accomplished, in practice the reality is that some foundations are highly subsidized by public funds.

Among the private type of foundations various subtypes can be found: independent foundations, corporate foundations, community foundations, fundraising foundations, 'Private foundations of Social Welfare', and foundations linked to the church. (A cautionary note must be sounded in relation to foundations created under private law by public entities alone or in partnership; these are often referred as 'public hand' foundations.)

Corporate foundations are a relatively recent phenomenon in Portugal and therefore only a small number exist. Four corporate foundations are included among the respondents to the FOREMAP survey: Fundação EDP and three other foundations linked to the pharmaceutical industry, Bial, Grunenthal

and GSKCS. These foundations emphasize their independence from their 'parent' companies, but the link in terms of funding and board members is a reality.

The concept of community foundation is almost unknown in Portugal, although there is at least one very successful example (Foundation for the Community Development of Alverca – CEBI). Another rare type is the fundraising foundation, an example of which is Fundação Assistência Médica Internacional (Fundação – AMI).

The 'Private foundations of Social Welfare' combine elements from foundations and elements from private institutions of social welfare. They are created according to the will of an individual, and their activities are confined to the social welfare field; they are regulated by the Law Decree n. 119/83 of 25 February. Once registered, these institutions automatically acquire the statute of collective body of public utility (art. 8 Law Decree n. 119/83). These foundations were not included in the FOREMAP project as they are devoted to social welfare services, not to R&D.

The foundations instituted by the church, through canonical law, are usually linked with a parish and the local priest, who assumes its presidency, but they have a distinct juridical form. The most common are the 'Centros Sociais e Paroquiais'. These, too, have a social welfare purpose and are not a target group for the FOREMAP project.

For several years the possibility of revising the legal framework of foundations was discussed and proposals were submitted to the competent government bodies (Machete and Antunes 2004). Nevertheless, the revision was never accomplished.

Science and science funding in Portugal

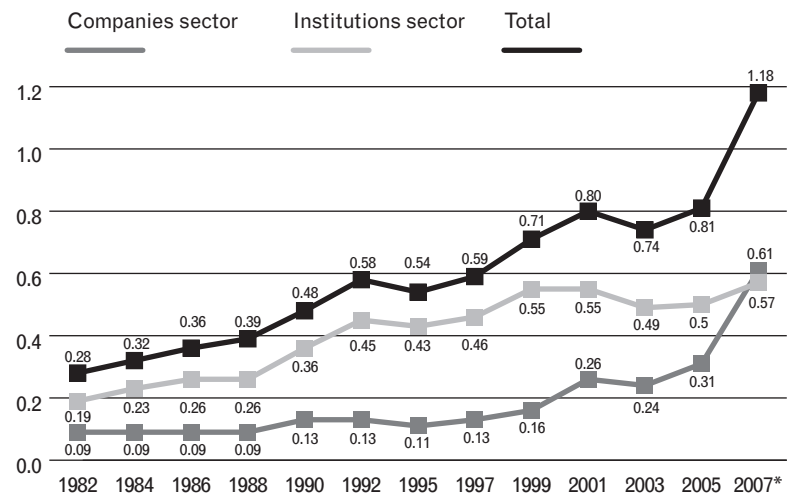
Between 2005 and 2007 national R&D expenditure in Portugal grew from 0.81 per cent of GDP to 1.18 per cent, representing a growth rate of 46 per cent. The companies sector contribution exhibited an even higher growth rate (97 per cent).

In 2007 R&D expenditure amounted to €1,921 million, compared to €1,201 million in 2005, representing a real growth of almost 51 per cent (current prices). This clearly shows that R&D intensity has increased significantly, but it is still relatively low compared to the EU average of 1.83 per cent of GDP.[12] At a national level, however, Portugal's R&D investment is comparable. For instance, R&D accounts for 1.22 per cent of GDP in Spain (9 per cent growth 2005–7), while in Ireland it represents 1.31 per cent of GDP (5 per cent growth 2005–7).

[12] Eurostat R&D statistics for 2007.

On the 2007 EU R&D scoreboard, Portugal was positioned 15th among the EU27, having climbed three places since 2005. The annual levels of R&D expenditure by sector of execution show a significant growth in contributions from the business sector (see figure 12).

Figure 11 Portuguese R&D expenditure as a percentage of GDP



* provisional data

Source: GPEARI 2008

Figure 12 Portuguese R&D expenditure (current prices) by sector of execution

	1999		*2001*		*2003*		*2005*		*2007**	
	€ 000	*%*	*€ 000*	*%*	*€ 000*	*%*	*€ 000*	*%*	*€ 000*	*%*
Companies	184,797	23	330,311	32	338,038	33	462,015	38	988,219	51
State	227,672	28	215,519	21	172,045	17	175,552	15	175,592	9
Higher education	314,364	39	380,649	37	391,797	38	425,187	35	573,696	30
Non-profit	87,914	11	111,954	11	117,700	12	138,357	12	183,041	10
Total	814,747	100	1,038,432	100	1,019,581	100	1,201,112	100	1,920,548	100

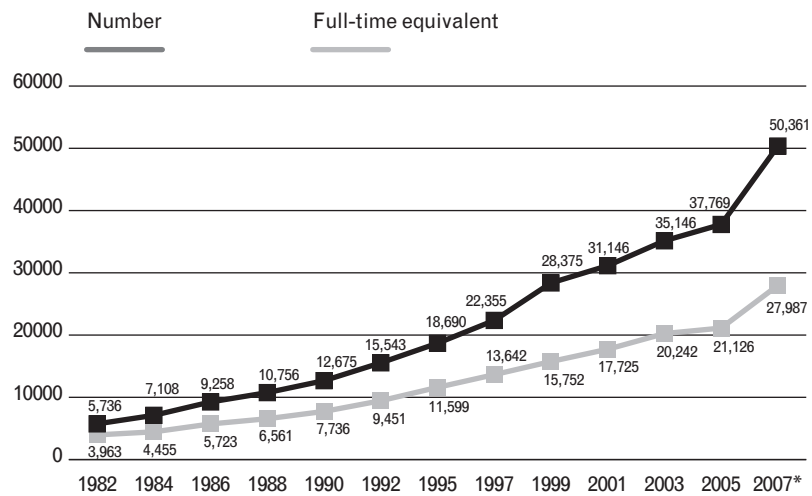
* provisional data

Source: GPEARI 2008

Portugal lagged behind other European countries in business R&D until the period from 2005 to 2007, when the country registered a growth of 97 per cent in percentage of GDP; it now represents 51 per cent of the national R&D expenditure (from 38 per cent in 2005). According to one of the interviewees for the FOREMAP project, this figure reflects the fact that more companies were surveyed, rather than a real growth in the private for-profit sector expenditure in R&D.

Portugal has seen a substantial increase in the number of researchers in the last three decades. In 1982 researchers in full-time employment represented 0.09 per cent of the active workforce, while the latest figures from 2007 show that researchers now account for 0.5 per cent. In 2007 there were an estimated 50,361 R&D personnel working in Portugal, 27,987 of whom were full-time employees.[13] The figure includes not only researchers and scientists, but also people providing direct services, such as R&D managers, administrators and clerical staff.

Figure 13 Number of researchers in Portugal



* provisional data

Source: GPEARI 2008

Scientific articles increased from 99 to 276 per million population from 1995 to 2005. Similarly, the number of triadic patent families per million population

[13] Eurostat R&D statistics for 2007.

expanded at 11 per cent a year (in compound terms) between 1995 and 2005.[14] In 2007 Portugal registered seven patent applications per million population, much lower than the European average of 106.

R&D institutions

A network of R&D units belonging to universities and state-managed autonomous research institutions makes up the core of Portugal's science and technology research output. These are divided into research centres, associated laboratories and state laboratories.

The research centres or units are autonomous nuclei made up of researchers who associate voluntarily in order to pursue purposes of common interest. The majority of these institutions are hosted by universities. The funding of these units is provided by the Programa de Financiamento Plurianual of the Foundation for Science and Technology (Fundação para a Ciência e Tecnologia, or FCT), a public institute under the authority of the Ministry of Science, Technology and Higher Education. In 2007 422 units were supported by the FCT.

Associated laboratories are research institutions, public or private non-profit, that have the capacity to cooperate, in a stable, competent and effective way, in order to pursue specific areas of the national scientific and technological policy. Between 2000 and 2006, 25 state-approved laboratories were established. Although they are dedicated to diverse areas, there is a higher concentration in health sciences, biotechnology and biochemical engineering. State laboratories are public collective entities, created with the purpose of pursuing the scientific and technological policies prescribed by the government.

There are also several private institutions which are providing significant support to R&D, among which the Gulbenkian Science Institute (Instituto Gulbenkian de Ciência, or IGC) stands out.

In order to stimulate innovation in the business sector, a number of programmes financed by European Structural Funds were undertaken (PEDIP 1988–93, PEDIPII 1994–9, POE and PRIME 2000–5) under which the technological infrastructures were developed. Three types of institution were created to support innovatory dynamics in Portuguese industry: Technological Centres (Centros Tecnológicos), Technology Transfer Centres (Centros de Transferência de Tecnologia), and New Technologies Institutes (Institutos de Novas Tecnologias) (Ribeiro et al 2007).

[14] OECD science, technology and industry outlook 2008: www.estatisticas.gpeari.mctes.pt/archive/doc/41559348portugal.pdf.

Statistics on R&D and non-profit institutions

The public institution producing official statistics about R&D in Portugal (Gabinete de Planeamento, Estratégia, Avaliação e Relações Internacionais, or GPEARI) conducts regular surveys on the sector, including the contribution of a set of organizations referred to as 'Private non-profit organizations (PNP)'. However, these surveys are not relevant for the purposes of FOREMAP. As an illustration, of the 127 institutions listed in the PNP 2005 database, only three foundations are included (Gulbenkian, Bissaya Barreto and Ela). It is also worth noting that the Portuguese PNP sector in GPEARI data shows an extraordinarily high level of expenditure in comparison to other countries, but a cautionary note about its meaning was sounded in one of the interviews conducted for the FOREMAP project. Indeed, included in the PNP database are institutions that are the result of public–private partnerships or were created by public entities. They do not, therefore, fit the concept of private non-profit organizations, as for instance expressed in the structural-operational definition proposed in Salamon and Anheier 1992, especially since they lack the characteristic of being private and self-governed institutions.

Law Decree n. 125/99, 20 April, establishes the legal framework for institutions devoted to scientific research and technological development.

2.2.2 FOREMAP survey: main findings in Portugal

In Portugal the reality of foundations and R&D is very diverse. There is a limited group of big foundations that tend to assume a mixed posture of supporting and operating activities in the field of R&D; and alongside this, there is a group of small foundations that perform a very limited role in R&D, albeit a significant role, certainly, for the people supported, through grants and support to small projects.

The group of big foundations is itself very diverse, especially as a consequence of the presence in it of a foundation – Fundação Calouste Gulbenkian – which is far bigger than all the rest. The total assets of this foundation are more than seven times bigger than the next one in the ranking, which is Fundação Champalimaud.

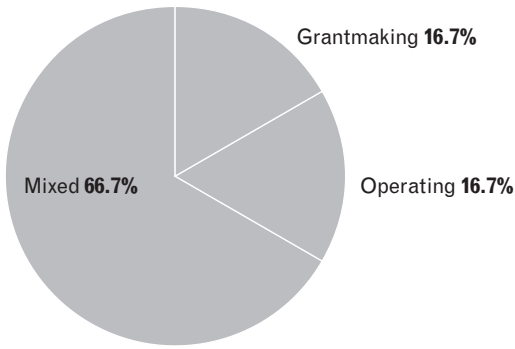
It is also interesting to note that there are foundations whose purpose is clearly to give support to R&D, such as Fundação Luso-Americana (FLAD), Bial, GlaxoSmithKline (GSKCS), Grünenthal and the small foundation Pulido Valente. Of these, Bial has a smaller expenditures structure, given the nature of its means of support – prizes and grants – and relies on a voluntary structure of experts in the fields of science and medicine for the selection of grantees.

Funding R&D

In Portugal, FOREMAP looked at 12 foundations with total assets amounting to just over €4 billion and expenditure of €171 million, of which €25.2 million went to supporting research.

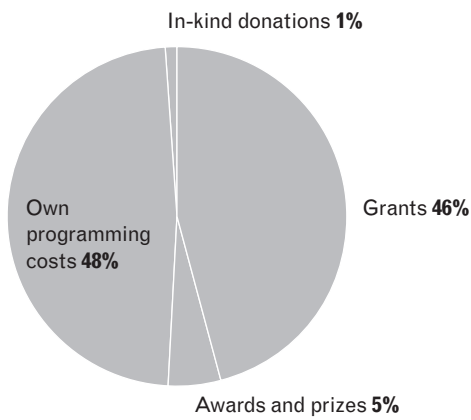
Looking at the forms these foundations take, 66 per cent (8 out 12) combine grantmaking with their own operations. The share of grantmaking and own programming is illustrated by the survey results on funding mechanisms, which show that 46 per cent of total research expenditure goes in grants, while 48 per cent is made up of programming costs.

Figure 14 Grantmaking, operating and mixed foundations (2007)



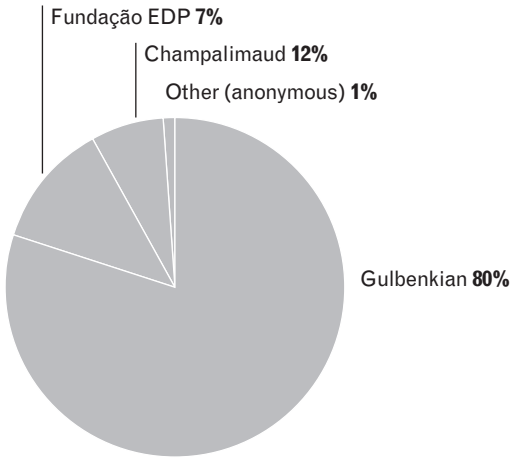
Disclaimer: the figures cover only the surveyed foundations. n = 12

Figure 15 Breakdown of expenditure by funding mechanism (2007)



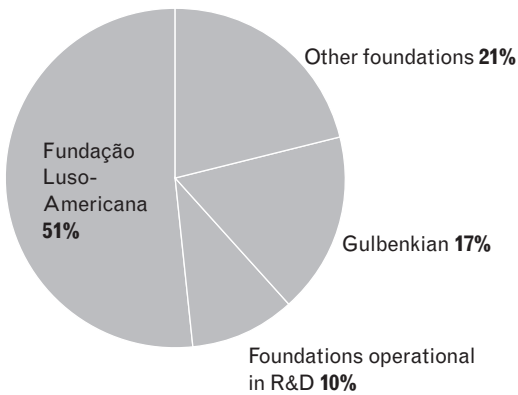
Disclaimer: the figures cover only the surveyed foundations. n = 12

Figure 16 Own programming costs of Portuguese foundations (2007)



Disclaimer: the figures cover only the surveyed foundations. n = 4

Figure 17 Breakdown of grants by foundation (2007)



Disclaimer: the figures cover only the surveyed foundations. n = 11

In terms of sources of income, most of the foundations (66 per cent, or 8 out 12) rely on endowment to fund their work, while 50 per cent (6 out of 12) make use of donations from other organizations, including other foundations.

The foundations surveyed in the course of FOREMAP are the largest-known research foundations in Portugal. In addition to these large

foundations, there are a number of small foundations that perform a very significant (if somewhat limited) role in R&D, and these were also documented.

Just five foundations account for 96 per cent of total research expenditure, with one foundation (Fundação Calouste Gulbenkian) accounting for nearly half of all funding allocations and another (Fundação Luso-Americana) a quarter. Fundação Calouste Gulbenkian devotes about 50 per cent of its research expenditure to the Gulbenkian Science Institute (IGC), an R&D centre which the foundation founded and finances and which is integrated in its structure.[15]

Figure 18 Assets and expenditure of Portuguese foundations (2007)

		Total assets (€ 000)	*Total expenditure (€ 000)*	*Expenditure on R&D (€ 000)*	*Exp on R&D/ Total exp*	*Exp on R&D/ Total assets*
Fundação Gulbenkian	independent	3,043,957	116,015	11,772	10.1%	0.4%
Fundação Luso-Americana	public hand	134,093	8,892	5,961	67.0%	4.4%
Fundação Champalimaud	independent	469,199	–	3,450	–	0.7%
Fundação EDP (2008)	independent	27,435	10,874	1,635	15.0%	6.0%
Fundação GSKCS	independent	202	208	153	73.5%	75.7%
Fundação Grünenthal	independent	53	46	41	89.1%	77.4%
Fundação Pulido Valente	independent	231	12	7.5	63.6%	3.2%
Fundação Ela	independent	260	252	5	2.0%	1.9%

Source: FOREMAP, Portugal

[15] Some data is omitted in response to requests for anonymity.

Figure 19 Assets and expenditure: comparative analysis (2007)

	Total assets (€ 000)	*Total expenditure (€ 000)*	*Expenditure on R&D (€ 000)*	*Exp on R&D/ Total exp*	*Exp on R&D/ Total assets*
Top 5 R&D total	3,679,816	137,232	24,255	17.7%	0.66%
Total 12	4,139,331	171,037	25,266	14.8%	0.61%
Top 5 total/total 12	88.9%	80.2%	96.0%		
Fundação Gulbenkian	3,043,957	116,015	11,772	10.1%	0.39%
Gulbenkian/ top 5	83%	85%	49%		
Fundação Luso-Americana	134,093	8,892	5,961	67%	4%
Luso-Americana/ top 5	4%	6%	25%		
Fundação Champalimaud	469,199	–	3,450	–	1%
Champalimaud/ Top 5	13%	–	14%		

Compared to the previous accounting year (2006), 58 per cent (7 out of 12) of the foundations had increased their research expenditure. The increase is explained by two respondents as a result of decisions to support or develop new projects. In one case, a fund was created to support three new research projects, while in another a new project was undertaken by the foundation. The increase is explained in another situation by the fact that some key prizes and scholarships are awarded every two years, and 2007, the year used as reference for the survey, was a year in which awards were made. Finally, another foundation explained that the increase was due to external co-funding of projects, where funds had been channelled to the foundation in order that it could manage the projects' implementation.

Looking at the geographical distribution, respondents reported that 79 per cent of research expenditure is allocated to activities at a national level. No foundations reported activities at a European level, while they reported spending 14 per cent of annual research expenditure outside Portugal. The remainder was spent at regional level.

Among the foundations surveyed, almost half operate outside Portugal, each one for different reasons. Fundação Aga Khan, one of the foundations

operating internationally, exists in Portugal as a separate juridical entity, but it has close links with the Aga Khan Foundation based in Geneva, which is a development agency of the Aga Khan Development Network, a network operating all over the world. Its usual forms of intervention are intrinsically international, and as they are based on an action-research methodology, knowledge is tested and spread all over the agencies in a process of continuous learning.[16]

Two of the foundations were established specifically as organizations that bridged two countries or two worlds: Fundação Luso-Americana as the result of an agreement between the Portuguese and US governments, and Fundação Oriente as a foundation with close links with the Portuguese past in East Asia, specifically with Macau, a former Portuguese colony.

The international character of Fundação Champalimaud is inherent in its mission to foster international work in the research area. Indeed, the foundation was established with the goal of making significant scientific progress, particularly in the fields of cancer research and neuroscience. On the foundation's website, it is stated: 'As it is a private organization, the scope for the research initiatives and funding programmes of Fundação Champalimaud is unrestrained by national borders. If a particular country is in a better position – governmentally, clinically and/or institutionally – to accommodate a certain type of biomedical research, the foundation has the flexibility and freedom to respond quickly and to lend its support.'[17]

Fundação Bial, an independent foundation that has links with the pharmaceutical company of the same name, was created with the altruistic intention of contributing to the advancement of research in Portugal and internationally. In the words of its president : 'Fundação Bial Fundação aims to contribute to innovation and the dissemination of science in the area of health, not only in Portugal, but in Europe and worldwide, because health is for everyone, and science has no frontiers.' (Bial 2008)

None of the foundations active internationally reported barriers to working beyond national borders.

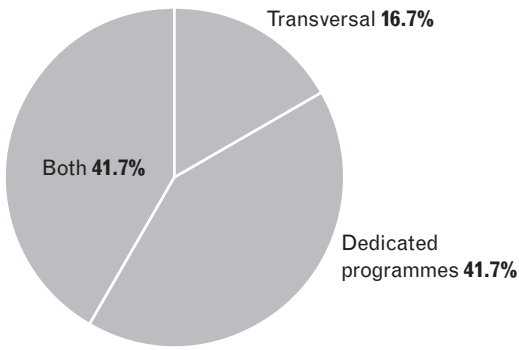
[16] Action research can be defined as the reflective process of progressive problem-solving led by individuals working with others in teams or as part of a 'community of practice' to improve the way they address issues and solve problems. Action research can also be undertaken by larger organizations or institutions, assisted or guided by professional researchers, with the aim of improving their strategies, practices and knowledge of the environments within which they practise.

[17] See www.fchampalimaud.org/who-we-are/about-us.

Research areas

Forty-two per cent (5 out of 12) of the foundations choose to have a mixture of dedicated programmes and transversal research activities, with 75 per cent (9 out 12) of respondents supporting both basic and applied research.

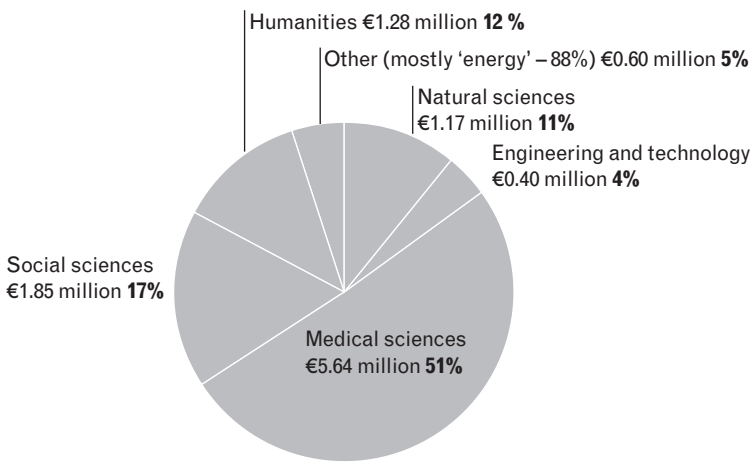
Figure 20 Transversal research versus dedicated programmes (2007)



Disclaimer: the figures cover only the surveyed foundations. n = 12

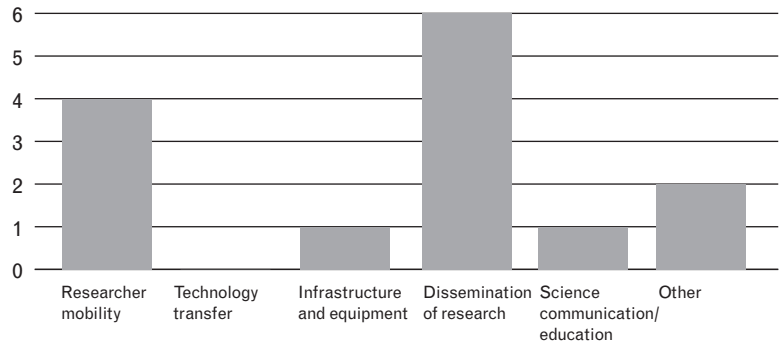
Medical sciences are by far the most generously funded R&D field according to respondents, accounting for 51 per cent of overall research expenditure.

Figure 21 Breakdown of Portuguese research expenditure by research area (2007)



Disclaimer: the figures cover only the surveyed foundations. n = 12

Figure 22 Funding and operation of transversal programmes (2007)



Disclaimer: the figures cover only the surveyed foundations. n = 9

Of those surveyed foundations that support transversal activities, the most common area to support is dissemination of research, followed by researcher mobility and career development.

Motivation and roles

Motivation R&D is inscribed, explicitly or implicitly, in the mission statements of all the surveyed foundations. The reasons for this choice are diverse, but a common motive seems to be altruism, manifested in the will of the founder (interpreted and reinterpreted by the boards over time) to contribute to the advancement of Portuguese society and the world through a chosen type of activity. The majority of the foundations surveyed perceive their role as that of innovators and R&D as a very direct way of fulfilling that role. Incorporating R&D into their respective fields of activity was mentioned by one surveyed foundation representative as a necessary component that all new foundations should integrate into their mandate.

The foundation recently established by the entrepreneur Soares dos Santos (and announced by the family on 16 February 2009) focuses on the field of the social sciences, with a mission to produce studies about Portugal that will serve as a basis for the advancement of the country. It was conceived as a foundation completely devoted to R&D (especially in the social sciences), with a predicted annual budget of €5 million.

Fundação Calouste Gulbenkian provides the most significant support (in financial terms) to R&D in Portugal (nearly €12 million from a total expenditure of more than €116 million) and devotes about 50 per cent of its research expenditure to the Gulbenkian Science Institute (IGC), an R&D centre. In the 2007 annual report, the IGC director wrote: 'To promote science and to serve the Portuguese research community, using the independence and the flexibility of a

private organization that can take the risks of innovation, are the first principles of the Foundation's Science Sector.' (IGC 2007)

Fundação Bial explained that its choice of investing in support of R&D in the medical sciences was based on the activity of the company from which it derives the majority of its funding. The specific area within the medical sciences was the result of a personal interest on the part of its president, together with a desire to avoid an area in which the company was directly involved, in order to guarantee the foundation's total independence. The foundation acknowledged, however, that its activities, including its highly regarded grants and prizes, help to promote the company's brand image internationally.

A personal motive (visual impairment) was the reason that Fundação Champalimaud included in its mission international support for eye research.

In the case of Fundação Aga Khan, which conducts action research, the kind of R&D it chooses to support is intrinsic to its way of working.[18] This is illustrated by the K-Cidade Program, currently being undertaken in Portugal. The foundation's long experience of international action in the field of rural community development has been the basis for reflection and action in the case of K-Cidade, the first urban community development programme conducted by the foundation. Before starting the fieldwork, an extensive research study was undertaken in order to provide Fundação Aga Khan with information about possible intervention areas in the country, as well as about community development programmes undertaken in other European countries. Once the thematic areas of the main intervention and the programme structure are established, the *modus operandi* is dominated by a constant learning posture that allows corrections to the previously planned course of action.

Redistribution of economic resources and preservation of research traditions and cultures were highlighted, each by two foundations, as reasons for supporting R&D activities, through the giving of grants and by the decision to build a museum.

Roles The majority of the surveyed foundations mentioned their role as a complement to public support and as a source of innovation.

To a lesser extent, resource distribution (two cases) and preservation of research traditions and culture (two cases) are also mentioned. The kinds of suggestion given in the answers on incentives indicate that government still has a long way to go in recognizing the role of foundations in support for and operation of R&D activities. Also, the lack of partnerships with industry is an indication that industry still does not fully appreciate the role of foundations in the area.

[18] See note 23 above.

Figure 23 Foundations' view of their own role (2007)

Nature of role	*Number of foundations*
Complementary to public/other support	9
Replacing public/other support	0
Redistributing economic resources	2
Finding innovative ways of doing things	7
Promoting research policy change	1
Preserving research traditions and cultures	2
Other (please specify):	2
Promoting an annual award ('Prémio de Ciência') and a conference on a scientific subject	1
Promoting international partnerships	1

Disclaimer: the figures cover only the surveyed foundations. n = 12

Relations between foundations and other stakeholders

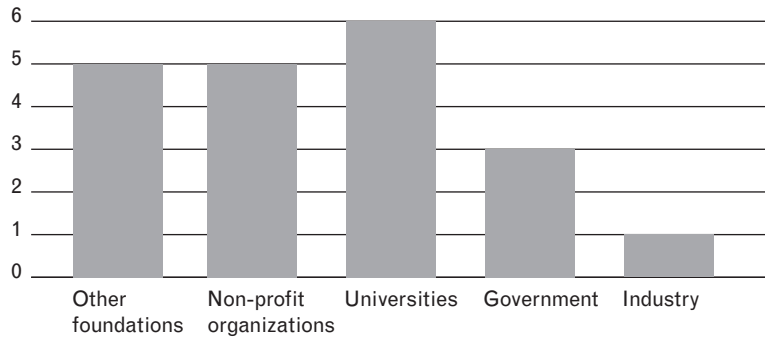
Three of the foundations surveyed stated that they did not form partnerships of any kind in the pursuit of their activities. Although the sample size was small, the experience of partnerships among those foundations that formed them was very diverse.

Figure 24 Types of partner and reasons for forming partnerships (2007)

	Partners mentioned				
	Other foundations	*Non-profit organizations*	*Universities*	*Government*	*Industry*
Fundação Aga Khan	x	x	x		
Fundação Bial	no partnerships				
Fundação Champalimaud		x			
Fundação EDP	x	x	x		
Fundação Ela	no partnerships				
Fundação Grünenthal	x		x		
Fundação GSKCS	no partnerships				
Fundação Gulbenkian	x	x	x	x	
Fundação Luso-Americana	x	x	x		x
Fundação Oriente			x		
Fundação Pulido Valente				x	

Disclaimer: the figures cover only the surveyed foundations. n = 11

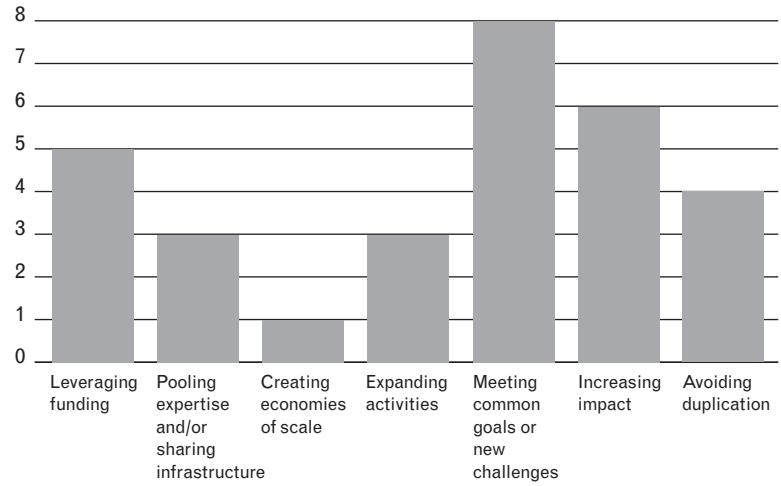
Figure 25 Types of partner mentioned by foundations (2007)



Disclaimer: the figures cover only the surveyed foundations. n = 9

	Reasons						
	Leveraging funding	*Pooling expertise and/ or sharing infrastructure*	*Creating economies of scale*	*Expanding activities*	*Meeting common goals or new challenges*	*Increasing impact*	*Avoiding duplication of effort*
					x	x	x
				x	x	x	
	x	x			x	x	x
	x				x		
	x	x	x		x	x	x
	x	x		x	x	x	x
				x	x		
	x					x	

Figure 26 Reasons given for forming partnerships (2007)



Disclaimer: the figures cover only the surveyed foundations. n = 9

Of the reasons given for forming partnerships, the most common were 'increasing impact' and 'meeting common goals', followed by a desire to 'leverage funding'. These three reasons reflect a desire to increase effectiveness and a shared interest in producing greater impact. This objective seems to be coupled with another – the need for efficiency, expressed in the concern to avoid duplication of effort.

It is noteworthy that government and industry are the partners least often mentioned by foundations. Nevertheless, Gulbenkian and Pulido Valente (a small foundation awarding an annual prize and grants) mention government as a partner. In the case of Gulbenkian, this partnership can be seen to take many forms.

In March 2006, in an inaugural speech given at a course on the management of non-profit organizations, the president of Fundação Calouste Gulbenkian, Emilio Rui Vilar, explained: 'In Fundação Calouste Gulbenkian, independently of our own activities, which are inherent in our structure and which we will naturally keep on developing, we have insisted on the need to look for partners and recipients of our support who present the best conditions in which to use the available resources effectively. Among partners and recipients, non-profit organizations are naturally preferred. The success of our choice therefore depends on the capacity of these organizations and the qualification of their workers to accomplish the purposes they intend to achieve. For this reason, in the context of its present action, Fundação Calouste Gulbenkian

selected capacity-building of non-profit organizations as one of the four axes of its transversal actions.' (Vilar 2006)

Champalimaud also chooses non-profit organizations (NPOs) as partners that may be stimulated by the foundation's activity: 'Through an active research programme Fundação Champalimaud intends to stimulate further clinical research, particularly in the non-profit sector.'

Innovative funding

The small number of foundations with a significant level of support for R&D makes it very difficult to highlight practices in the field. Nevertheless, there are many examples that can be cited.

Public–private partnerships

In 2007/8 Fundação Calouste Gulbenkian approached the Ministry of Health to find ways to foster and support the practice of high-quality medical research by physicians, as a long-term professional project. In addition to giving greater weight to such research outputs in the evaluation of CVs, the case was made for making medical internships more flexible in such a way that they could accommodate clinical practice and research activity. In 2008 a new programme was established by the foundation, in cooperation with Fundação Champalimaud, the Ministry of Health and the Foundation for Science and Technology, offering support for such research activities. The programme has since led to a change in the country's legislation and has had a significant impact on research in the health field.

Mainstreaming

Gripenet (www.gripenet.pt) is an online monitoring system, developed in 2005 by researchers at the Gulbenkian Science Institute (IGC), which collects data about flu epidemics. More than 12,000 people have already reported their symptoms, allowing a real-time analysis of flu incidence. Data has also been used in the development of mathematical models for a better understanding of flu epidemiology. A state agency named Agência para a Modernização Administrativa highlighted the project and included it in the Rede Comum para o Conhecimento (Knowledge Common Network).[19] This network supports and connects initiatives that seek to modernize and simplify public services.

[19] See www.rcc.gov.pt/pt-PT/Directorio/ContentDetail.aspx.

Innovative projects

Since the 1980s Fundação Aga Khan, together with Fundação Calouste Gulbenkian and others, has financed a university-based research association devoted to research into the issue of the education of young children. The Associação Criança aims to answer a set of interconnected questions: 'Is it possible, with the resources that we have in kindergartens in Portugal, to educate for excellence? Or is it necessary to invest much more? Or, instead, is it necessary to rebuild completely the education system for young children in Portugal?' The association created a model of intervention (although they reject the name 'model') that was evaluated at a national and international level, by OECD among others, and by the Aga Khan Foundation internationally. The model focuses on the education of child-minders in kindergartens. They were first challenged by the following question: 'If we strongly believe in the capacity of the human being and in his/her potential from the age of zero, what does this change in the way I work?' This model has already been applied in a kindergarten in northern Portugal and is now being replicated in Lisbon in the context of another project led by Fundação Aga Khan – the K-Cidade. The K-Cidade is an urban community support project unique of its kind in the country. It is being developed in a set of neighbourhoods in the Great Lisbon Area and focuses on four thematic areas: Families in the Community; Education and Children; Lifelong Learning; and Citizenship. Its innovative character lies in several strands; it seeks to:

- search for new ways of supporting communities;
- reinforce government attempts to meet the needs of an increasingly diverse population, not only in ethnic terms (as a result of immigration), but also in economic terms with rich and poor living side by side;
- strengthen civil society;
- mobilize a diverse network of partners, from private non-profits to public entities, universities and companies.

The K-Cidade is a pilot project which has been enlarging its areas of intervention either through K-Cidade teams or through other organizations. Studies are currently being undertaken in a set of European countries in order to assess the viability of replicating the initiatives in other cities.

Looking to the future

Asked about future spending, 58 per cent (7 out 12) of the surveyed foundations expected to retain current expenditure levels. Only two envisaged a decrease in

spending, which they attributed to multi-year outlays and to the financial crisis respectively.

Regarding future funding, it should be noted that there are no specific state incentives for foundations to fund or operate in the field of R&D. According to one survey respondent, the best way to encourage foundations to operate in fields such as R&D is for governments to take up and bring into the mainstream programmes initiated by foundations that have demonstrated their value to the country. Essential conditions for this are that foundations take the initiative and make good strategic decisions, and also that they develop a correct evaluation of the best initiatives under their statutory aims. Some respondents also suggested that a matching funds approach should be applied as a way for the state to support foundations' activity. However, it was emphasized that, although this approach might work well, it could also turn into an indiscriminate form of state support, which might mean placing public funds at unnecessary risk.

Other suggestions advanced by the surveyed foundations focused on public policies and on the policy-makers' role. According to one respondent, public R&D policies in Portugal do not clearly recognize the relevance of local initiatives and give them sufficient support. Project-financing through public funds (whether the project is a pilot or not) has a short-term focus and therefore produces discontinuity of action. A few policy measures have been implemented that have allowed territorial governance structures (*Redes Sociais* – Social Networks, *Conselhos Municipais* – Municipalities Councils), but these have not been taken up, nor are there resources available to support the infrastructure, projects, services and collective actions associated with such measures. The majority of the initiatives still depend on financing from national or European programmes.

Respondents suggested a number of ways in which policy-makers could encourage the participation of foundations in local R&D initiatives. These include promoting networking and coordination between public entities and local and regional agents, in order to foster the building of an integrated vision and programme structuring. In this way foundations would not be asked to participate in one-off projects that are unconnected and may compete with or complement other projects. Policy-makers should also recognize, support and value the role of foundations in R&D, the partnerships they seek to form (with different actors, public or private, for-profit and non-profit), and their contribution to civil-society capacity-building, especially of less privileged groups. As a consequence of their financial independence and flexibility, foundations can assume a catalysing role in partnerships, challenging all

actors to share resources, use them efficiently, integrate perspectives, and complement competences and actions. Policy-makers should promote common initiatives and provide facilities to enable dissemination of scientific research and science in general. They should also provide long-term subsidies in order to allow long-term instead of short-term research.

One of the surveyed foundations stressed that the best way to encourage foundations is to mainstream the programmes tested by foundations that prove useful for society. This would free foundations to fund or carry out new initiatives, in a virtuous cycle of risk-taking followed by consolidation with public funds. It was emphasized that this type of approach is applicable at any level (regional and national) and to all forms of support, including grants and prizes, project support and institutional facilities.

At national level, the surveyed foundations also highlighted the importance of promoting better coordination between public entities and local and regional agents and of encouraging public–private partnerships, in order to enable foundations to develop and evaluate pilot projects. This is particularly important because, in many cases, foundations focus their energies in less explored fields where the state, for various reasons, is not present. More support should also be given to implementation of action-research projects, sharing of good practices and dissemination of project results. Tax incentives, state matching funds and long-term support for projects would also encourage more foundations to work in the field of R&D. Policy-makers could also invite foundations to participate in the shaping of R&D policy by providing feedback on newly formulated policies.

At EU level, one respondent noted that the politics of interchange in the research field were too institutionalized (in the sense of being too concentrated in public powers) and frequently ignored third sector organizations (including foundations) that could perform a complementary role to the official entities and universities. To overcome this, it was suggested that European foundations, or associations of foundations, that play a key role could be better represented in national strategic decision-making bodies or 'research councils', such as the Fundação para a Ciência e a Tecnologia (Science and Technology Foundation – FCT) in Portugal. Other ways suggested to encourage the participation of foundations included provision of information about European programmes and dissemination of best practices. Further suggestions included state co-funding of projects supported by foundations and the creation of a support system to encourage better cooperation among foundations, as well as between foundations and other actors, in order to avoid duplication of effort and to allow synergies.

2.2.3 Applying the methodology

A total of 12 foundations were surveyed for the purposes of FOREMAP, reporting assets of €4.1 billion in 2007 and allocating over €25 million to research. In order to collect this data, the research team's first task was to compile a list of (at least) 20 foundations active in the field of research. The first option considered was to select those foundations from a list of the top 100 foundations ranked according to total expenditure. This was not possible, however, as in Portugal there is not a complete and updated database on the foundation sector, and the effort of building it would be impracticable for various reasons detailed in this text. Therefore, a snowball technique was adopted as the only remaining option.

Analysing existing databases

In a tentative attempt to build a complete list of foundations active in Portugal, the research team identified and collected the most reliable foundations databases available in the country. Three databases were used as a starting point for the work: one from the Portuguese Foundation Centre (CPF), one from the National Statistics Office (INE), and one from the Presidência do Conselho de Ministros (PCM), the government office with responsibility since 2007 for recognition of new foundations.[20] The three were made available to the research team on an understanding that an updating process needed to be undertaken.

A number of weeks were set as the timeframe for this revision process. The databases were merged; a group of foundations found to be government-run was set aside, as they did not constitute the target of the FOREMAP project; a small group of foundations was identified as non-existent and taken out of the database; and an effort was made to find missing data. The major source of information in this endeavour was the internet, as alternative public means of undertaking such an updating process were unavailable. In the end, a list containing the names of 614 foundations was compiled. This list was taken by the research team to be a close approximation of the foundation world, as time constraints and the specific purposes of the project would not allow a more detailed and complete process of verification.

The information in this final database was still incomplete, mostly as a result of variations in the information available in the original databases. While the INE database was no more than a list of names, the CPF one contained the president's name and the foundation's contacts, and the PCM one included data on the legal recognition process and purposes (albeit in varying degrees

[20] Recently made publicly available at www.sg.pcm.gov.pt/fundacoes.htm; it contains formal data on their constitution and on the recognition process.

of detail). The task of filling the blank cells in the final database proved to be impossible in a reasonable time-frame, because public information on many foundations was either non-existent or very limited and insufficient, while some foundations in the database were unexpectedly found to be impossible to track.

There was not, in any of the original databases, financial information of any kind, eg on total expenditure, which might have provided the first step in the selection of the sample. The search for this information was successful only in a very limited number of cases where foundations make their annual reports available. Nor was there information on the purposes of all foundations, which might have provided an alternative criterion for selecting the sample of foundations active in the field of research. Given this set of constraints, the database was set aside as a reference for sampling.

A note should be added on a further possible source: the GPEARI database. GPEARI is a study centre of the Science and Higher Education Ministry which produces official statistics on the fields of R&D and innovation. In its database of non-profit institutions, which includes only operating institutions in the field of R&D, only three private foundations are listed.

The research team therefore decided to follow a snowball sampling technique, which was also suggested in the project guidelines.

Choosing a snowball sampling technique: conditions and pitfalls

The snowball sampling technique is very useful for so-called 'rare populations' or for 'hidden populations' (populations difficult to find). The FOREMAP project target population – foundations supporting and/or operating in the field of R&D in Portugal – proved to fit both descriptions.

A necessary condition for the success of this technique is that the members of a population know each other. The objective is to create a frame of members, and the approach consists of the identification of a few members of the population, who are then asked to identify others from the same population. When a frame has been built, a probability selection can be taken from it. The critical issue at this point is the completeness of the frame. A more common application of the snowball technique, and the one used in this project, avoids the construction of the frame, and involves continuing the snowball process until a number of population members considered sufficient for the survey has been found. In this case the survey interviews are conducted with the identified members, and the re-contacts needed for the frame-construction approach are avoided. Those elements who have more contact with other members of the population have a higher probability of being included in the survey than those who do not have so many contacts.

This technique is more appropriate for exploratory studies and qualitative investigations (like the present one) than for statistical surveys.

Implementing the snowball technique

The request made to each participant in the snowball methodology was to identity five to ten foundations in Portugal known to support R&D activities. The entry point for the snowball implementation was the Portuguese Foundation Centre (CPF). This organization supplied a list of 12 foundations which were then contacted and presented with the same identification request. The method for contact was mixed, first by email, and then by telephone in those cases where answers had not been received within a certain period of time. The process continued, and each new foundation that was referred was then asked to name others, and so forth. In this way it was possible to produce a set of 37 named foundations, based on input from nine foundations and the CPF. Of these 37, two were found to no longer exist, one was non-existent, and eight were considered to be government-run foundations. In the end, a list of 26 'eligible' foundations was compiled.

The list of 26 foundations was revised in order to detect any significant absentees, and three others were added, bringing the total to 29 foundations which would be asked to answer the survey.

Response rate

The survey was sent to 28 foundations,[21] and of these seven contacted the research team to explain their reasons for not responding. Five foundations stated that their purpose was not related to R&D or that their recent activities did not involve support for R&D; one explained that it was going through a restructuring phase and was currently unable to answer the survey; and one said that it was not willing to supply financial data and so would not return the survey.

In the implementation of the snowball technique one of the major pitfalls was the low level of knowledge foundations revealed about others that were developing or supporting R&D activities. In many cases, the immediate answer given to the research team was of ignorance of other named foundations, with the exception of the most generally familiar ones, such as Gulbenkian and Champalimaud. The low level of knowledge among foundations may be attributed to a low level of relationships among them, but also to the very small number of foundations in Portugal that devote significant amounts of money to the support and/or operation of R&D activities. Indeed, in Portugal there seems to be a very clear dividing line when it comes to foundations' support in

[21] One refused to answer before seeing the survey.

the field of R&D: on one side, there are those foundations that make very high contributions; on the other, there are those that give small contributions in the form of grants and scholarships. In the middle, there is perhaps a small group of medium-sized foundations that perform an interesting role in very specific fields, usually support for medical research.

Duration

Overall, it took four months for the data collection and data analysis of the survey to be conducted.

2.2.4 Bibliography

Interviews

Conversations held with the majority of the respondents were an important source of information. Also, two extensive interviews were undertaken with Prof João Caraça, from Fundação Calouste Gulbenkian, and Dr Luís Portela, president of Fundação Bial. Important input was also received from Prof António Coutinho, director of the Gulbenkian Science Institute.

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2.3 Slovakia: exploratory overview of research foundations

Lenka Ilanovska

2.3.1 Contextual background

Historical background

The majority of foundations and civil-society organizations in Slovakia were created following the fall of communism in 1989. This gave rise to an explosion of civil-society organizations focusing on education, science, healthcare, children, the disabled and current social issues. Between 1992 and 1996, some 2,634 foundations were created, most of which were operating and providing social services. In this period foundations were established under the Act on Association of Citizens and under the Civil Code. Most of the income of these foundations originated from abroad, and it is worth noting that at this time the law did not include provisions for foundations to develop endowments or to accumulate funds.

A first act on foundations was adopted in 1996, to which all foundations had to conform to maintain their statute. Under the act, foundations were required to have a minimum capital of 100,000 Slovak korunas (SKK), or approximately €3,300. Foundations that were unable to meet the criteria set out in the new act were forced to dissolve. The number of foundations operating in Slovakia fell to 357 as a result of the act.

In 2002 a new legal status for foundations was defined which opened the way for foundations to hold endowments. At the time, around 480 foundations were operating in Slovakia.

Foundation landscape

As of 31 December 2007, an analysis of the sector by the Slovak Donors' Forum (SDF) found that there were 363 foundations registered in the Register of Foundations. Based on data available in the Register and in the annual reports of Slovak foundations for 2007, the foundation sector in Slovakia presented the following characteristics:

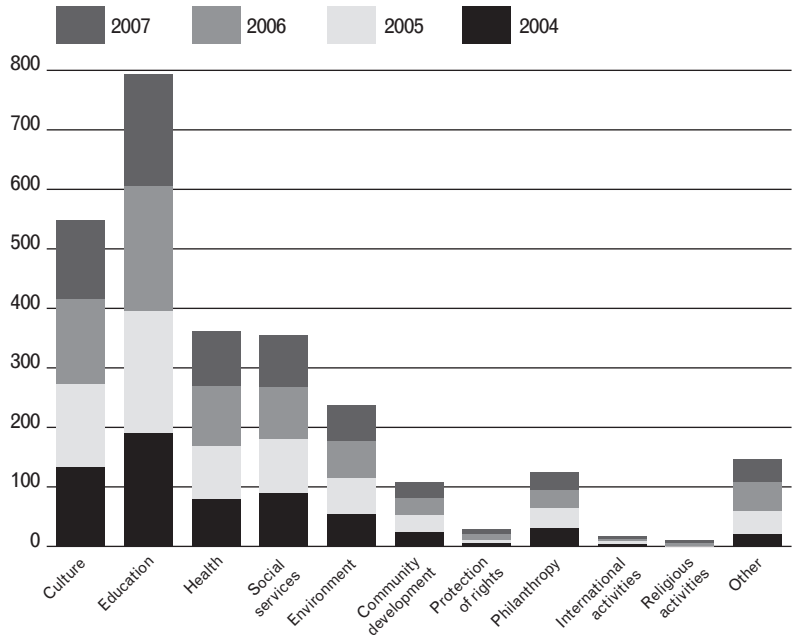
– As of 31 December 2007, the total volume of registered endowment of active (grantmaking and operating) foundations amounted to €10,571,353. The year 2007 saw 25 new foundations registered. The Slovak foundation sector comprised operating, grantmaking and passive foundations.[22]

[22] Passive foundations were those that did not undertake any activity in 2007. They did not award any grants or carry out any operational programmes. However, this does not mean that they did not continue with their activities in 2008 or 2009.

– As of 31 December 2007, the total volume of Slovak foundations' assets amounted to €72,306,281; their income amounted to €38,861,257.
– Foundations spent €38,723,868 on their activities, with grants representing a value of €24,473,674.
– The total value of grants awarded by the top ten Slovak foundations represented 68.45 per cent of that awarded in 2007 by all registered foundations.

Based on the common international classification of non-governmental organizations (NGOs) developed by the Centre for Civil Society Studies at Johns Hopkins University, the focus of Slovak foundations' activity is as presented in figure 27.

Figure 27 Areas of support pursued by Slovak foundations (by number of foundations active in a specific field) (2007)



Legal and fiscal framework

The legal status of foundations is defined by the Law No. 34/2002 on foundations (Law on Foundations) which came into force on 1 March 2002. Under the law, a foundation is defined as 'a public benefit organization that accumulates

assets for a specific purpose with a view to promoting and achieving public and benevolent purposes'.

This law is important as for the first time it defined the elements of foundations' capital and included the concept of endowment. In this connection, the law states that 'the foundation endowment is inviolable and only the profits derived from it can be used. In the same vein, the treatment of the foundation endowment at this point is rather conservative and strictly set forth by the law.'

A foundation is established on the day of its registration in the Register of Foundations, which is administered by the Slovak Ministry of the Interior. No state approval is required for the establishment of a foundation. However, there is a minimum capital requirement of €6,600 (SKK 200,000).

Slovakia has enacted a mechanism whereby both natural and legal persons can allocate 2 per cent of their taxes to public benefit organizations, including foundations. This is an important source of income for Slovak foundations; it accounted for 31 per cent of their income in 2007, an increase from 28.7 per cent in 2006.

Science and science funding in Slovakia

An important turning point in Slovakian research came with the fall of the Berlin Wall in 1989. Up until then, Slovakia benefited from a strong research sector with gross expenditure on research approaching 4 per cent of GDP. The fall of communism led to a period of transition to a market economy which saw reduced public spending on research, a brain drain of scientists, and a decline in research undertaken by the business sector. In addition, this period saw the closure of numerous public and industrial research institutes.

By 2005 gross expenditure on research had fallen to 0.49 per cent of GDP. At this time, the Slovakian government launched a Competitiveness Strategy plan. This was followed by a recognition of the importance of research and development, which constitute one of the operational programmes of the national framework plan for 2007–13.

In 2007 Slovakia spent 0.46 per cent of its GDP on R&D, which is equivalent to some €260 million. This is less than one quarter of the EU average, the second lowest among the EU27, and one of the lowest levels of R&D investment among the OECD countries. In part this could be explained by 'the restructuring and closure of government and industrial R&D institutes during the transition to market economy' (OECD 2008). Furthermore, the possibility of stronger public spending is somewhat limited by the budgetary constraints imposed by the entry of Slovakia into the euro zone in 2009.

The Slovak Ministry of Education is responsible for scientific policy, while public funds for research are channelled through the Slovak Research and Development Agency.

A key funding programme is the Minerva programme for research and technology. The programme is aimed at supporting the development of the knowledge economy in Slovakia, through activities focusing on four main areas:[23]

- information society;
- science, R&D and innovations;
- education and employment;
- business environment.

Funding for the programme comes from public funds, European Union programmes and private sources.

Slovakia's research structures can be divided into four subcategories:

- the Slovak Academy of Sciences;
- other public research institutes;
- universities;
- private research institutions.

The Slovak Academy of Sciences operates a number of research institutes in all fields of science from the hard sciences to the humanities and social sciences. Some 70 science institutes and organizations operate under the umbrella of the Academy.

Main funders

Public sources (government and education) account for the majority (60 per cent) of total R&D spending – €152 million. Contributions from the business sector represent 40 per cent of R&D investment, while the private non-profit sector makes a comparatively small contribution to the R&D arena (less than 1 per cent).

In 2005 the Slovak Research and Development Agency (Agentúra na podporu výskumu a vývoja – APVV) was established as a non-profit organization under the Slovak Ministry of Education. Its main focus is supporting R&D in the country by allocating public financial resources to R&D projects. APVV works together with the Ministry of Education in the development and implementation of national science and technology policies; it also oversees 'implementation of new programmes and forms of

[23] See www.iminerva.sk.

support of international cooperation in the area of research and development and implements European programmes and initiatives related to R&D. The Agency's Cooperation Programme supports projects oriented towards arts and information technologies, including the digitization of institutions.'

Strengths

The main strengths in Slovakian research lie in mathematics and science education, which explains the high number of engineering graduates. Recent years have also seen a rise in university enrolment. According to numbers provided by the OECD, between 1995 and 2003 there was a 100 per cent increase in university students.

Challenges

The main challenges which Slovakia faces in the area of research are underinvestment, combined with an ageing research infrastructure. In addition, although university enrolment is high and science education of high quality, the number of researchers in the country is very low. In fact the proportion of engineers and scientists in the Slovak workforce is the lowest in Europe. According to Eurostat, they account for just 2.8 per cent of the workforce.

Finally, Slovakia has set itself a target of spending between 1.8 and 2 per cent of its GDP on R&D by 2010.

2.3.2 FOREMAP survey: main findings in Slovakia

All the foundations that participated in the study are very well-established foundations from the top 100 largest grantmaking foundations. All of them are professional organizations that implement activities in order to achieve their mission and stated objectives. Although their budgets (when compared to the largest foreign foundations) are very small, they are aware of their role in the area of research in Slovakia.

Funding R&D

The survey focused on the largest research-funding foundations established in Slovakia. Twenty foundations were selected for the survey with combined assets (as of 31 December 2007) of €8.7 million. These foundations spent €5.2 million on programmes and activities in 2007, with some €3 million spent on research activities. The majority of the foundations surveyed (18 out of 20) were mixed – they were both grantmaking and operating – with funding coming from a variety of sources, mainly endowment, 'income tax designation' and donations. The remaining two foundations were operating only.

Slovak foundations do not yet possess big endowments and assets, therefore they cannot rely solely on the returns from these endowments and/or assets to fund their activity and also have to engage in fundraising activities. A decrease in donations, combined with reduced interest incomes and a decrease in income from the 2 per cent tax designation programme, has also forced some foundations to reduce their expenditure.

When the foundations surveyed were asked to consider how their activity had evolved between 2006 and 2007 in terms of spending, 45 per cent stated that their expenditure in research had not changed. These foundations also conduct projects that are repeated every year and thus they predict no change in funding for the future.

Seven of the 20 foundations surveyed indicated an increase in their expenditure compared to previous years. They stated that this trend was due to new partnerships with donors, including new forms of cooperation with corporate donors, and the allocation of new funds from fundraising.

The Slovak foundations that participated in the study are active only in Slovakia (this is generally true of all foundations' activities in the country). Cross-border funding is just emerging, and at present there are only a few foundations that support activities outside the country. In most cases this happens when a foundation belongs to a network, which is the usual motivation for funding activities abroad.

Figure 28 Diversity of income sources (2007)

	Number of foundations
Endowment (interest and dividends)	17
Fundraising	16
Service fees, sales, etc	3
Donations	17
Government funds	2
2 per cent income tax designation	17

Disclaimer: the figures cover only the surveyed foundations. n = 20

Research areas

The majority of the foundations surveyed (13 out of 20) are involved in both basic and applied research. Four are active only in basic research, three only in applied research.

The foundations surveyed fund both research and research-related activities. In terms of scientific fields supported, the medical sciences benefit

most from foundation funding, receiving 80 per cent of the funding allocated by the surveyed foundations. Similarly, in terms of financial support for research-related activities, the majority of funding is directed at infrastructure and equipment (78 per cent), which should come as no surprise in light of the old age and weakness of Slovak research infrastructure.

Figure 29 Scientific fields supported (2007)

	Total annual research expenditure (as of 31 Dec 2007)	*% of total annual research expenditure*
Natural sciences (mathematics and computer sciences – software only, physics, astronomy, chemistry, geosciences, biology, etc)	€73,292	4.1%
Medical sciences (genetics, clinical microbiology, neurology, epidemiology, etc)	€1,398,000	79.6%
Social sciences (psychology, economics, educational sciences, linguistics, etc)	€19,916	1.1%
Other: university research and nuclear energy	€264,920	15.2%
Total	€1,756,128	100%

Disclaimer: the figures cover only the surveyed foundations. n = 13

Figure 30 Funding for research-related activities (2007)

	Total annual research-related expenditure (as of 31 December 2007)	*% of total annual research expenditure*
Researcher mobility and career development	€79,151	4.2%
Infrastructure and equipment (ie laboratories, research centres)	€1,446,698	78%
Dissemination of research (seminars, conferences, publications)	€329,508	17.8%
Total	€1,855,357	100%

Disclaimer: the figures cover only the surveyed foundations. n = 12

Motivation and roles

Half of the surveyed foundations were established in the 1990s, when support for the research sector was needed but not so popular. The country was in a

transition period from centralized to market economy. There was no tradition in civil society and funding of public benefit activities by the foundation sector was just emerging. In the meantime, these foundations managed to establish good relations with their stakeholders and secured their position as strong players in the field. It is possible to conclude from their funding programmes over the past five years that their funding strategies are resistant to change. However, the scientific fields supported by the foundations do evolve as the needs of society change. Their resources are focused on specific needs, such as funding of medical equipment, research at universities, or research into new technologies.

Most of the research foundations created in the past few years were established by private companies. This brings a new aspect to cross-sector cooperation and produces very close cooperation between foundations and the business sector. The projects that foundations are funding are now very closely related to their donors' areas of interest. This has caused foundations to shift their interest to more innovative methods.

Relations between foundations and other stakeholders

Relations, particularly between state and foundations, are coloured by general disrespect on the part of government institutions for civil-society organizations. This cannot be said of all partnerships, however – the efficient ones (eg between foundations and universities) prove that both sectors can work together and achieve positive results. Cooperation with business (industry) is more open and frequent. Many foundations were actually established by businesses in order to help them in their own areas of research; both sides benefit from mutual respect and cooperation.

The majority of the foundations surveyed do not engage in joint research activities in partnership with other organizations. Out of 17 foundations that considered this aspect of the FOREMAP survey, only five were active in this way.

The main reasons for engaging in partnerships were:

- pooling expertise and/or sharing infrastructure (4 responses);
- meeting common goals or new challenges (2 responses);
- increasing impact (2 responses);
- monitoring and evaluation of activities (2 responses).

Looking to the future

The foundations surveyed were invited to consider how their spending on research would evolve in the future. Only two foundations indicated that they expected to increase their expenditure in the coming years. This pessimism was very probably caused by uncertainty and economic turbulence. The study was

conducted at a time when discussion was more and more focused on the impact of the economic recession on the charity sector and support for public benefit activities, R&D included.

Ten of the 20 foundations surveyed expected their funding to be reduced, while seven did not plan to take any action that would change the foundation strategy or to make any change in programmes and funding in the near future. Finally, one foundation indicated that it would stop supporting research entirely. However, this foundation was passive in 2008 and was expected to shut down in the coming years.

Currently there are no state incentives to encourage foundations to fund and/or operate in the field of research. However, R&D is not exceptional in this respect, as there are no tax incentives for donors or recipients in general. Since 2002 (when the Slovak tax system was changed) there have been no tax incentives and there is only one mechanism to support public benefit activities: the income tax designation mechanism. At present, this mechanism can be used by both private and legal entities, which can designate up to 2 per cent of their paid income tax to go to not-for-profit organizations conducting public benefit activities. In this regard, R&D is considered to be a public benefit activity and is therefore eligible to receive public funds through this mechanism.

Some foundations stated that they would be glad if the status quo of foundations was maintained. As constant changes are very demanding on personal and financial capacities, they indicated that a situation of flux was even worse than a defective environment. The introduction of tax incentives for donors supporting R&D and thus creating more appropriate and favourable conditions for R&D would also be welcomed. Others claimed that there was a need for an immediate increase of R&D support at all levels, with a particular focus on support for high-quality research at schools and on scientific education.

2.3.3 Applying the methodology

One concern was the collection of data through questionnaires, since the response rate is always low in such cases. However, working with reliable data such as annual reports and the official register, rather than with the questionnaire alone, made it much easier to compile the report.

The Slovak foundation sector is only 20 years old, so at the beginning of the survey it was necessary to determine the definition of 'foundation'. Compared with other EU countries, there is no difference in the legal framework regarding foundations (indeed, Slovakia has one of the strictest sets of legal conditions for foundations in the EU). However, Slovak foundations are not

endowed and are still in the process of building assets. Hence, in order to achieve their goals, they are also fundraising.

Taking this into consideration, first we listed foundations according to their assets, then we made our selection on the basis of the top 100 largest foundations ranked according to their assets (by this means we wanted to ensure that the selected foundations would not only be fundraising but also have their own assets). From these foundations, the largest ones were selected according to expenditure. Based on their annual reports and data in the Register of Foundations, we then selected 20 foundations active in the field of R&D. In this step we applied the definition provided by European Foundation Centre.

This study was useful in uncovering many weaknesses in Slovak foundations active in this field and in suggesting, at the same time, many projects and initiatives that might be of benefit to them. Besides this, we have gathered some very useful data and arguments that might be used to promote a more enabling environment for these foundations to operate in.

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2.4 Sweden: exploratory overview of research foundations

Stefan Einarsson

2.4.1 Contextual background

Sweden has a long and rich foundation history. In the early 21st century, there are currently some 14,500 larger foundations – foundations that have more than 350,000 Swedish krona (SEK) (about €34,250) in capital and thus are obliged to register with the County Administrative Board – and these function in a wide variety of fields and roles. Statistics are scarce in this field, and many changes have occurred as a result of the new law on foundations. However, according to earlier estimates, there are perhaps as many as 20,000 or 30,000 smaller foundations in Sweden in addition to the 15,000 larger ones, and these are not captured in the statistics below (Wijkström 2001).

Historical background

In the past Sweden was a rather poor country but enjoyed a fair share of natural resources. Over time Sweden developed into a small but rather successful industrial and trading nation in northern Europe, and as a consequence some economic wealth has accumulated in the country. This wealth initially found its way into private hands, but the increase in private wealth was later matched by growth in the public wealth of the state or government sector, as a result of a long-standing dominance in politics by the Social Democrats and subsequent high-tax regimes. This growth in public wealth has affected the development and structure of the Swedish foundation sector in various ways.

All of these more general historical factors are important in explaining the growth and development of Swedish foundations. Following a focus on education and scholarship in the period before 1800, there was a greater emphasis on creating foundations in the field of social services in the period 1800–50. Research foundations have been dominating the foundation arena since the second half of the 19th century. To understand this development, a couple of more specific historical developments must be brought to the fore: the emergence of the welfare state and the strength of the popular-movement tradition. The core of the popular-movement tradition is the idea of large membership-based organizations which are democratically governed and whose membership is open to all. They often have a federative structure and mobilize members all over the country. They are frequently seen as the most important part of Swedish civil society and thus all other civil-society actors, such as foundations, are seen as marginal in the field (Hvenmark and Wijkström 2004).

In the 20th century, during the emergence of a public welfare system, the role of Swedish foundations in the broader field of welfare provision was clearly seen as that of marginal or small complementary providers of either tangible social services or economic support. This marginal or complementary position of foundations appears to be the consequence of two different processes. The first relates to older institutions, for example those established in the mid or late 19th century, and their development in parallel with the development of a preferred public welfare system. From an earlier dominant, or at least strong, position in their field, these institutions subsequently entered into this new complementary role as a result of the emergence of the welfare state. The second process relates to social welfare foundations established later on, when the public welfare system had already been established. In this case, these new actors were set up in a complementary position to an already strong and dominant system. This situation was crucial in their very formation, and their charters, structures and boards of trustees have been adapted accordingly.

We now have a situation either where earlier foundation arrangements have been transformed, or where foundations have developed into marginal actors in their fields. In a sense, it could be argued that the institutional memory and practice of having strong independent foundation actors in society have been lost. In the current changing context, when a large share of the resources for scientific research in Sweden is to be found in more independent foundations beyond direct state or government control, this lack of institutional memory might result, for example, in a degree of turmoil and confusion.

During the 20th century, the popular-movement association form emerged as the most dominant civil-society tradition in Sweden. In many situations this form has replaced the two other forms as *the* form in which to organize non-profit or voluntary activities. The strength of the *folkrörelse* concept in Sweden has even been described as a 'popular movement marinade' in which civil society in Sweden is embedded (Hvenmark and Wijkström 2004; Wijkström, Einarsson and Larsson 2004; Hvenmark 2008). In this strong tradition, which emerged in Sweden during the 20th century, the idea and existence of foundations have not always been easily integrated. Sometimes they have even been perceived as being in opposition to the popular movements and their associations. Often, this perception was due to the people or values associated with the foundations, but sometimes the non-democratic and memberless form of the foundations has also been part of the problem.

The other major development in the Swedish foundation sphere during the 1990s was the dissolution of the wage-earners' funds (*löntagarfonderna*) and the subsequent creation of the so-called wage-earners' fund foundations

(*löntagarfondsstiftelserna*), many of which have a focus on research and higher education. These new foundations were set up by the conservative government between 1991 and 1994, by redeploying capital from the earlier, and highly debated, wage-earners' funds. In total, almost SEK 20 billion (€1.95 billion) was used as the endowment for 11 new foundations. In 2002 six of these foundations were among the 28 largest foundations in Sweden, each with more than SEK 1 billion (€97 million) in assets. In the same year another foundation within this group of six, Riksbankens Jubileumsfond (already established in the early 1960s), received a considerable separate donation.

Foundation landscape

There are approximately 14,500 larger foundations in Sweden, and in 2001 they reported assets of more than SEK 270 billion book value (€26.5 billion). As we shall see below, the Swedish foundation population can be divided along two major lines into three major sub-populations.

The first line (horizontal) is drawn between what can be broadly considered as some kind of 'public benefit' foundation on the one hand, and a group of foundations more narrowly defined as 'labour-market' foundations on the other. Although we will not deal with these foundations in further detail, it is important to note that the combined assets of around 3,000 foundations on the registers of Sweden's County Administrative Boards (CABs) that are related to the labour market came close to SEK 120 billion (€11.7 billion), thus representing approximately 44 per cent of total registered foundation wealth in 2001.

The second dividing line (vertical) separates autonomous foundations – with a board of their own to govern and lead their operations – from those foundations that are administered through an attached administration with the board of another organization or institution. In our database, there are approximately 6,000 foundations under attached administration (*anknuten förvaltning*). In total, they are reported to hold more than SEK 31 billion (€3 billion) in assets as of 2001.

The majority of Swedish foundations were established in the 20th century, and by far the largest share of foundation wealth is to be found in them. Almost 75 per cent of all existing foundations and more than 90 per cent of the 2001 assets have their origins in the previous century. Only some 800 foundations were created before the 20th century. Moreover, most of the foundations existing in 2001 (approximately 9,200) were actually established in the period between 1950 and 1999. The table overleaf shows the current situation for Swedish foundations and their assets, according to the ICNPO

classification system.[24] It is clear that research-oriented foundations dominate the sector, followed by social services and education.

Figure 31 Swedish foundations under autonomous and attached administration (2007)

	Autonomous administration			*Attached administration*		
	Number	*Assets (SEK million)*	*Assets (€ million)*	*Number*	*Assets (SEK million)*	*Assets (€ million)*
Grantmaking	3,571	94,373	9,303	5,971	30,667	3,024
Fundraising	352	556	55	57	153	15
Operating	1,506	27,051	2,666	40	654	64.5
Public benefit	5,429	121,980	12,024	6,068	31,484	3,103.5
Pension	2,391	111,351	10,982	–		–
Personnel	586	2,086	206	–		–
Collective agreement foundations*	20	5,134	506	–		–
Labour-market	2,997	118,571	11,694	–		–
Total	8,426	240,551	23,718	6,068	31,484	3,103.5

Source: Wijkström and Einarsson 2004

* Collective agreement foundations (*Kollektivavtalsstiftelse*) are foundations created through an agreement between an employer organization and a labour union.

Figure 32 Breakdown of Swedish foundations by field of support (2007)

	Number	*Assets (SEK million)*	*Assets (€ million)*
Culture and recreation	1,150	6,500	642
Education	2,290	23,200	2,289
Research	2,240	66,300	6,543
Healthcare	570	5,900	582
Social services	3,430	24,700	2,437
Environment	190	1,700	168
Development and housing	670	19,700	1,944
International activities	190	1,200	118
Religion	510	3,300	326
Not elsewhere classified	190	900	89
Total	11,430	153,400	15,138

Source: Wijkström and Einarsson 2004

[24] International Classification of Nonprofit Organizations, where the codes refer to the field of activity in which the individual foundation is engaged (Salamon and Anheier 1996).

During the 20th century, research was clearly the most popular field in the creation of foundations, especially in terms of the wealth donated. As many as one in five foundations set up during the 20th century was a research foundation, and their combined assets (approximately SEK 60–70 billion, or €5.8–6.8 billion) represented almost 45 per cent of total foundation wealth in 2001. This development has also affected the total capital found in this particular field, which is today the largest, followed by education and social services.

Legal and fiscal framework

The Swedish law on foundations was established in 1996 – before this there was no law regulating foundations. The law states that a foundation exists only when: (i) an asset or property (ii) has been set aside from the donor(s) (iii) to be administrated separately and permanently (iv) with the aim of serving a specific purpose. A Swedish foundation cannot have owners or members, but is instead described as a 'self-owning entity' (*självägande*). A foundation is required to have a board and the word *stiftelse* must be part of the official name – a word that is reserved only for foundations.

The Swedish foundation law acknowledges two methods of administering a foundation: either through an autonomous board, or through the care and administration of the board of another organization or institution. This latter form is here called attached administration (*anknuten förvaltning*). In the 2002 registers, a total of 6,088 foundations were placed under attached administration, which is more than half of all public benefit foundations in the database. Although they are numerous, the combined assets of these smaller foundations, with their administration attached to the board of another organization or institution, represent only about 20 per cent of total foundation capital (excluding the labour-market foundations).

In addition to the foundation law, the tax laws are of importance when gaining an understanding of the foundations in Sweden. Current fiscal legislation concerning foundations dates back to the 1940s, although earlier examples of favourable treatment can be found, such as in 1810. In particular, scholarship funds and some specific charitable foundations (*fromma stiftelser*) were at that time granted tax exemption (Hagstedt 1972; Isoz 1997). In the early 1990s, an overhaul of the tax legislation for foundations and non-profit associations was carried out, and in 1995 subsequent new legislation was proposed in a public government report (SOU 1995:154). This revision met with criticism, and in 2003 the proposal was finally put to rest. At the time of writing there is another overhaul of tax legislation for foundations and non-profit associations being carried out, coupled with an investigation into taxes on gifts

and donations. It is, however, too early to speculate what the results of these two investigations might be.

To receive tax-exempt status in Sweden today, a foundation must belong to one of two main groups: (1) the charitable foundations, or (2) the foundations found in the so-called 'Catalogue'.[25] To be considered charitable in Sweden, a foundation must comply with three prerequisites: (a) its aim and purpose should be considered a 'qualified' public benefit purpose; (b) about 80 per cent of its income over a five-year period should be spent; and (c) its main activity should be carried out according to the aim or purpose stated (Law 1947:576, as presented in SOU 1995:154; see also Olsson 1996).

Qualified public benefit purposes include strengthening national defence, conducting relief work among the needy, improving childcare and education, promoting scientific research (included in a revision from 1942), and furthering cooperation between the Scandinavian countries (included in 1991). In general, foundations are traditionally less favoured with respect to the range of activities for which they are granted tax exemption, and they are also often held to stricter standards and kept under tougher control than non-profit associations.

Having two different and parallel legal systems, with occasional overlapping terminology and use of similar words, does not simplify attempts at classifying or defining different types of foundations or their activities. For a deeper discussion on fiscal legislation, see also Melz 1998 and Gunne and Löfgren 2001.

Science and science funding in Sweden

Sweden is one of Europe's champions when it comes to investing in research. In 2006 the country invested 3.73 per cent of its GDP in research, the highest intensity of any of the EU27 countries, even exceeding Japan, which stands at 3.2 per cent, and the US at 2.65 per cent. This amounted to some €11 billion spent on research in 2006. Roughly three-quarters of funding comes from the private sector, with just under a quarter from the public sector.

Main drivers

The Swedish research scene is quite unusual in Europe in that it is one of the few where industry, as a driver of research and development, is the largest provider of research funding in the country. However, the sector generally supports its

[25] The Catalogue (*Katalogen*) grew from the 1947 tax law, and included a total of 14 categories of legal entities and 45 specifically mentioned organizations or institutions. The organizations included in the Catalogue are subject to paying tax solely on income from real-estate property, and not, for example, on income from other business activities.

own projects, which focus on development more than on research per se, and only very limited funding is directed to universities.

Research policy is the responsibility of the Swedish government, which defines research priorities, and the Swedish Ministry of Research (Utbildningsdepartementet), which is responsible for the implementation and coordination of research policy. Priorities and funding for public research are set in four-year periods. Funds are provided to each ministry to support research in their sphere of responsibility. As ministries are small and streamlined entities, their competitive research funding is managed by a dedicated and often larger research council or agency with a high degree of autonomy.

Public support for research takes the form of operating grants, which are paid directly to institutions through the Ministry of Research; and funding for projects, which is awarded through research councils and agencies on a competitive basis.

In its 2006 report entitled *Swedish Research: Main financing bodies*, Forskning.se, a body set up by ten public authorities and foundations that fund research, identifies five sources of funding for research in Sweden:[26]

- the private business sector, by far the largest at 65 per cent of funding;
- the public sector at 22 per cent;
- public research foundations at 1.8 per cent;
- private research foundations at 2.1 per cent;
- foreign funding, including European funds, at 7.3 per cent.

Apart from industrial research and development, research in Sweden is mainly undertaken in the country's 17 universities,[27] 22 state university colleges, and 25 other organizations entitled to offer postgraduate training. A 2005 study quoted by the Swedish Research Council found that 89 per cent of Swedish publications referenced in the Thomson Web of Science database are authored by researchers based in higher-education institutions.

Sweden is also host to public research institutes which focus on very specific topics, such as the Forestry Research Institute of Sweden and the Swedish Institute of Space Physics. However, they are small and not as important as in countries such as France and Germany, where research institutes are major players.

[26] Numbers relate to 2003. The relative share of funding between the various stakeholders has not seen any dramatic shift since.

[27] This includes the country's three independent universities: Chalmers University of Technology, the Stockholm School of Economics and Jönköping University.

Main funders

Industrial research in Sweden is mostly funded by the country's top 20 companies, which account for some two-thirds of industrial research in the country. These include worldwide names such as ABB, Astra Zeneca, Atlas Copco, Electrolux, Ericsson, H&M, IKEA, Saab, Sandvik, SKF, Pharmacia and Volvo.

In the public sector, the biggest share of funding comes from eight government agencies with the Swedish Research Council and Vinnova (the Swedish Agency for Innovation Systems), accounting for 60 per cent of public funding for research. The country is also notable for the fact that a number of endowed and fundraising foundations play an important role and in certain fields – the medical and social sciences – provide funding that is very much on an equal footing with the public agencies. For example, in 2006 the largest foundations supporting medical sciences provided some €113 million of funding.

Figure 33 Swedish funding agencies and fields of support (2007)

Agency	*Field of support*	*Funding awarded in 2006 (€ million)*
Swedish Research Council	Basic research in the natural and social sciences	234
Vinnova	Innovation in the natural and social sciences	186
Swedish Agency for International Development Cooperation	Environment, medicine and health, natural sciences and technology, society and culture	90.6 (of which 32.5 was allocated for research in Sweden)
Swedish Energy Agency	Environment, natural sciences and technology	75.7
Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning	Environment, natural sciences and technology, society and culture	53.4
Swedish Council for Working Life and Social Research	Working life, public health, social research	27.9
Swedish Environment Protection Agency	Climate change, natural environments	9.3
Swedish National Space Board	Space and remote-sensing	5.1

Strengths

Three areas where Swedish research is taking the lead at the international level are environmental research, the medical sciences and nanosciences.

In the environmental sciences, Sweden has been very active in research into renewable energies, as well as in issues linked to sustainable development and marine biology.

In the medical sciences, Sweden is host to the Karolinska Institute in Stockholm, which is one of the world's leading medical research universities, and financial investment in medical research, from the public sector, private foundations and the bio-pharma industry (Astra Zeneca, Pfizer, Pharmalink, Pharmacia, Recip and Ferring), is important. The country is also host to a number of important medical research foundations, including Knut och Alice Wallenbergs Stiftelse. The Swedish Cancer Society is also involved in supporting medical research, but it is an association, not a foundation.

Research in technology, and in the nanosciences in particular, has been a driver for the development and growth of numerous Swedish industries. Notable examples include ABB, Sandvik and Höganäs.

In October 2008 a new four-year research and innovation bill was presented, which doubled resources for research, with the largest increases in medical research, technology and climate research.

Challenges

In 2007 the European Commission published key figures on investment in research across the 27 EU member states. The report found that Swedish investment in research had decreased in relation to GDP; after reaching a peak of 4.25 per cent of GDP invested in research in 2001, investments had fallen to 3.86 per cent in 2005. Studies from the Swedish Research Council also found that in the period 2004–9 resources for research in higher-education institutions had stagnated. Furthermore, according to a recent study by the Rand Corporation: 'If the performance of the research system is measured using bibliometric methods, Sweden's position as one of the world's top medical research nations has been deteriorating since the mid 1980s.' Surprisingly, according to the same study, which relies on bibliometric studies by Enerbäck et al (2004), activity in the natural sciences, technology and engineering is increasing. One of the challenges today for Swedish science is how to sustain and support the growth of research funding.

Within the next 15 years, 45 per cent of university employees will retire, and great effort is being invested in training new researchers.

2.4.2 FOREMAP survey: main findings in Sweden

Foundations have long played an important role in the Swedish research arena, and they have been especially important funders of expensive equipment and buildings. They have of course also been important funders and initiators of projects. But overall they have mainly filled the role of complementing the activities of the state and of business actors, especially since the 1950s, when state-funded research started to grow. This could be described as an historically avant-garde position which was gradually forced to retreat into a role of complementing the state, as the latter expanded into research funding and took over more and more responsibility from independent funders (Wijkström and Einarsson 2004; Sörlin 2005a).

Over time some foundations, especially the larger ones, have developed a distinctive character and have thus brought more pluralism and risk-taking to the research field. It is also interesting to note that the SEK 4 million (€390,000) that the Swedish foundation sector donates to research each year is equivalent to the research conducted at Uppsala University or Lund University (Sörlin 2005a). For a more comprehensive picture of the Swedish research field in general, see for instance Sörlin and Törnqvist 2000 and Blückert and Österberg 2006; and for the relation between philanthropy and economic growth, see Braunerhjelm and Skogh 2004.

There are generally two views on the effect of external funds on the quality of research. The first view is that external funds provide more resources which make more research possible. These external funds also create competition between individuals and groups, and this has a positive effect on the quality of research. The second view is that, since universities are underfinanced, external funds are allowed to influence the research agenda unduly and thus undermine freedom of research (Sörlin 2005b).

A recent big change in the research field, which is described very well in *I den absoluta frontlinjen*, edited by Sverker Sörlin (2005c), is the creation of the wage-earners' fund foundations. According to Sörlin, these can be seen as the starting point of the transformation of the research field, leading to an increased concentration of resources and a differentiation between universities. Here the foundations are used as a tool in transforming the research field from an arena governed by academic values of fundamental research into one dedicated to applied research with strategic importance from an economic standpoint (Benner 2005a). But at the same time it is important to remember that the wage-earners' fund foundations represented a very small part of the research budget of the universities, at around 5 per cent (Sörlin 2005b). The change has also met resistance from the existing system, so it has not been as large

as the instigators might have hoped for. To sum up, the wage-earners' funds have been important for individual projects, subjects and universities, but they have not had a broad impact on the research field and can more fairly be seen as an incremental agent of change in a rather stable system (Benner 2005b; Sörlin 2005d).

The 2008/9 FOREMAP pilot survey in Sweden originally gathered a sample of the 40 largest research foundations, based on the extensive database constructed during 2002/3 at the Stockholm School of Economics. Seven foundations were added to this sample during the research process. Altogether, the survey gathered data on 47 foundations.

Sixteen foundations filled in the survey, four declined to participate, and 27 did not reply at all. In order to provide as complete a picture as possible, the study relied on the use of public data for those foundations that did not fill in the survey. Eleven of the foundations in the sample that did not reply to the survey have annual reports and/or data on grants on the internet. Information on the remaining 20 foundations was gathered from the County Administrative Boards (CABs) in Sweden. The survey data was also complemented by an interview study targeting foundation executives, experts on foundations, and individuals with insight into state policy. An extensive literature review was also conducted within the study.

Funding R&D

The FOREMAP survey gathered information on 47 Swedish foundations that reported assets of SEK 107,180 million (€10.47 billion) and total expenditure in 2007 of SEK 4 billion (€390 million). Almost all the foundations' expenditure – 95 per cent – was allocated to research (equivalent to SEK 3.8 billion, or €371 million). This seems in line with the assessment made for 2002, where the total amount of grants to research was estimated at SEK 4 billion (€390 million) (Wijkström and Einarsson 2004).

Most of the research foundations surveyed are grantmaking (92 per cent), and around 78 per cent of the foundations responding to the survey have research as a dedicated programme. The vast majority of the foundations surveyed (94 per cent) rely on their endowment as the main source of income.

Compared to the previous accounting year, 48 per cent of Swedish foundations surveyed have increased their research expenditure, while that of 32 per cent of the foundations has remained the same. The main reason given by the respondents for increasing expenditure was good growth of the stock market. One of the foundations emphasized the importance of the

quality of applications, which improved significantly; a greater number of good applications led to a larger amount of funds being allocated.

The one foundation that reduced its research expenditure gave as an explanation the expected removal of the so-called 'university VAT' in 2009. According to this foundation, several universities have requested that payment of already granted funds be postponed until 2009, when the universities will not have to pay VAT. This factor led this particular foundation to decrease its grants for 2008, but it expects to increase its grants by the same amount in the following year.

Regarding the geographical focus of Swedish foundations' funding, most of the surveyed foundations are active on a national level (69 per cent), while only a few are active on a European or international level (19 per cent). Most of the foundations that are active outside Sweden are active on both a European and an international level. When looking at amounts of expenditure by geographical area, the figures broadly coincide, as 74 per cent of expenditure is directed towards research activities at national level, with a further 24 per cent spent at regional level.

However, it is important to remember that, although foundations fund mostly at national level, their grantees may be involved in international partnerships, and their research projects may have an international scope.

Figure 34 Breakdown of expenditure by geographical area (2007)

Geographic area	*Number of foundations*	*% of surveyed foundations*	*Number of foundations that specified expenditure*	*Annual research expenditure (€ million)*	*% of total annual research expenditure*
Regional level	4	25.00	3	31.81	24.00
National level	11	68.75	11	97.56	73.60
European level	3	18.75	3	2.12	1.60
International	3	18.75	2	1.06	0.80

Disclaimer: the figures cover only the surveyed foundations. n = 16

When trying to understand Swedish foundations' motivations for choosing to fund particular geographical areas, it is important to separate what civil law allows or forbids from what the tax law favours. There are no prohibitions on Swedish foundations operating abroad, and there are also legal precedents that state that funding research activities abroad is tax-exempt for Swedish

foundations (Arvidsson 2003 and 2005). Most experts seem to agree that there are no barriers preventing Swedish foundations from funding research outside Sweden, as long as the charter of the foundation concerned allows it to do so.

Expanding a foundation's geographical area of operations will of course increase costs, relating (among other things) to the likely higher number of applications and hence to higher administrative and management costs. Such costs must be weighed against the benefits of expanding the geographical area of operations. These costs will most likely be seen as part of the mission of the foundation and will thus be tax-exempt.

None of the foundations surveyed mentioned existing direct incentives for funding research outside Sweden. However, a couple of respondents mentioned that research is an increasingly international field and that foundations therefore need to be able to expand their operations beyond their own borders in order to find the best projects. This might conflict, however, with the role of being an innovative research funder, since expansion abroad demands knowledge of, and immersion in, local research networks. Such knowledge is more difficult and more costly to gain on an international level, and the more resources are used on administration, the less can be spent on actual research. One survey respondent suggested that one way to overcome this obstacle was to cooperate with foundations in other countries in order to find and fund the best research projects on an international scale.

Research areas

In Sweden 63 per cent of the foundations surveyed support both basic and applied research, with only a small number of foundations supporting one but not the other.

The foundations surveyed in the Swedish sample make their greatest expenditure in the field of social sciences, closely followed by engineering and technology and then medical sciences. Forty-eight per cent of foundations support the social sciences, though only 28 per cent of expenditure is directed to this field.

Figure 35 Breakdown of expenditure by research field (2007)

Research field	*Annual research expenditure per field (€ million)*	*% of total annual research expenditure*
Natural sciences	36.05	10.15
Engineering and technology	92.26	25.97
Medical sciences	66.81	18.81
Agricultural sciences	27.57	7.76
Social sciences	100.74	28.36
Humanities	31.81	8.96
Total	355.24	100.00

Disclaimer: the figures cover only the surveyed foundations. n = 41

The foundations that have a research-dedicated programme direct the greater part of their expenditure to infrastructure and equipment (81 per cent).

Figure 36 Breakdown of expenditure by research-related activity (2007)

Research-related activity	*Annual research expenditure per activity (€ million)*	*% of total annual research expenditure*
Researcher mobility and career development	11.66	14.14
Technology transfer	0.00	0.00
Infrastructure and equipment	66.81	80.98
Dissemination of research	3.71	4.50
Science communication	0.32	0.39
Total	82.50	100.00

Disclaimer: the figures cover only the surveyed foundations. n = 16

Just over 90 per cent of the foundations surveyed in Sweden are solely grantmaking and thus support their activities mainly through grants (97 per cent). Only 2 per cent of the foundations surveyed do so through their own programming costs.

Figure 37 Grantmaking, operating and mixed foundations (2007)

Grantmaking	43	91.49%
Operating	1	2.13%
Mixed	3	6.38%
Total	47	100.00%

Disclaimer: the figures cover only the surveyed foundations. n = 47

Figure 38 Breakdown of expenditure by support mechanism (2007)

Support mechanism	*Annual research expenditure (€ million)*	*% of total annual research expenditure*
Grants	129.37	96.83
Awards and prizes	1.06	0.79
Loans	0.00	0.00
Own programming costs	3.18	2.38
Total	133.61	100.00

Disclaimer: the figures cover only the surveyed foundations. n = 16

Motivation and roles

Motivation Several of the respondents pointed out that the reason why foundations supported research was that the founder had made that choice in the charter of the foundation. Swedish foundations and their boards are bound to act in accordance with their charter. In order to change the charter, it is necessary to prove, through a lengthy and difficult legal process, that it is no longer possible (or worthwhile) to achieve the goals of the foundation.

When asked why they think that research is the most common field of activity for Swedish foundations, several of the respondents suggested that the favourable tax treatment of research foundations, combined with the prestigious nature of research, was an important factor in founders' decisions. At the same time, some of the experts commented that there was an unwarranted obsession with tax-exempt status in discussions regarding the creation of foundations. According to this view, other issues, not related to tax, are more important for the founder and the tax-exempt status is just an added incentive. Several of the respondents stated that the founder's personal experiences often play a vital role in the decision to donate money. A very common reason for creating a foundation that supports medical research is personal contact with a particular disease. Other examples are donations to

educational facilities, hospitals and cultural institutions with which the founder has personal relations. Another common reason for creating foundations is that the founder has no heirs and thus wants his or her money to be put to good use.

Several of the respondents also stated that one of the reasons for the creation of a foundation was to promote industry, and one way of doing this was to support research in issues linked to industry. Some foundations, most notably those created from the resources of the wage-earners' investment funds, are explicitly created in order to promote the competitiveness of Swedish industry through research and innovation. Several of these foundations therefore stipulate conditions in their grants that require recipients to cooperate with local industry in various ways in order to qualify for grants.

Roles All the foundations that responded see themselves as fulfilling a complementary role to the state. Some of the foundations see themselves as innovative and promoting alternative ways of operating. This accords with previous research on the Swedish foundation sector, where several respondents mentioned that these roles were important for foundations (Wijkström and Einarsson 2004; Anheier and Daly 2007; Wijkström 2007).

Foundations feel that their work should complement traditional research funding (from state or business actors). However, developments in the field of research have forced foundations into a substitutive role. One interesting reflection was that, since Swedish foundations are so tightly bound by their charter, they have no option but to play a substitutive role in their given field if the other actors in the field choose to withdraw (see also Wijkström and Einarsson 2004; Wijkström 2007).

There is a risk that foundations, by imitating the research councils, become just another actor in the research field. While there is much to learn from how research councils work, foundations should at the same time be a complement to the regular structure of the research field. Here foundations have an important role to play in finding the balance between basic and applied research, since their relative independence allows them to make their own strategies and to set their own agendas. By acting as a bridge between research and practice, foundations have greater opportunities for generating impact.

Most of the foundations feel that they are able to identify important areas for research, quickly allocate resources, and at the same time act as an enduring funding partner. This stability and endurance, coupled with an ability to increase pluralism within research funding, is also something that is emphasized in the 1994 bill on education and research, in which the government argues for the creation of the wage-earners' fund foundations (Prop. 1993/94:177). Foundations are able to build research areas in a way that neither the state nor the

universities can, because they do not have to respond either to the voters or to the market, at least not in a direct way; this is something that makes foundations suited to the task of identifying and building up new research areas. Their endurance and stability may also allow them to develop over time their own identity and their own role in the research field. This is one of the characteristics of foundations which allows them, at a field level, to create pluralism in the research arena. But, as several respondents pointed out, this demands a lot of the management of a foundation and strategic vision in order to identify which research areas to fund, to draw up a strategy to build the research area, and lastly to find the stamina to see the strategy through.

One expert put this very eloquently by pointing out that foundations are exceptionally well positioned to build up new research areas and that they can break up old structures. By assigning capital with a timeframe of (say) 20 years to a board of directors, they are able to focus on a research area that politicians want to build up. When the time has elapsed, the research area should be established well enough that it can find funding elsewhere. In this way, a particular research field has an opportunity to build up its legitimacy so that it can compete on equal terms with other research fields. This is one way in which the foundations' partial isolation from the forces of markets and politics allows them to act strategically. One example of this is the work of the Vårdal Foundation for Health Care Sciences and Allergy Research, which has been instrumental in establishing the healthcare sciences alongside classical medical research.

Foundations are nonetheless affected by politics and market forces. Foundations are subject to the laws and regulations that are put in effect by public elected officials, and they also need to be seen as legitimate actors by the public. It is equally true to say that foundations are affected by the market, since their available funds are dependent upon returns on their assets. However, foundations are affected by politics and market forces in a slightly different manner than the state or companies. As a result the foundation sector is able to promote pluralism in the research sector, on both the funding and the operating sides.

In his 2005 book, Sverker Sörlin discusses the need for foundations to feel that they make an impact on society and that they are leaving a lasting impression on the world. Maybe this is another difference between the logic of foundations and the logic of the market or politics. In order to make a lasting impression in research, you need to find innovative projects, to build close alliances with researchers, and to make the relationship last even when facing

setbacks. Foundations, by being partially removed from the logic of the market and politics, are especially suited to this.

The logic of the research councils, on the other hand, states that researchers should make an impression on the world and should wish to do so. According to this logic, individual researchers will send in research proposals to the research councils and market mechanisms will lead to the best projects receiving funding. The research councils do not have to be innovative in deciding which areas to support; this will be decided by competition between the researchers. According to this logic, the research councils neither can nor should build alliances between other funders or between themselves and researchers, since this would distort the market mechanism.

This gives foundations a special and more proactive role in the research system. Instead of sitting back and waiting for applications to arrive, and thus letting the competitive mechanism of the research market sort out which projects to fund, foundations have to set their own goals and draw up the strategies to achieve them, and this might entail both defining the research area and also finding which researchers or groups of researchers to fund.[28] But this puts great demands on the foundations in developing their own distinctive character and strategy and in not getting caught up in what at the time is seen as fashionable research. The role of foundations in the research system could be partly characterized as a combination of innovation and conservatism.

Relations between foundations and other stakeholders

Few foundations in the sample engage in partnerships and alliances with other organizations (31 per cent). Those that do, however, tend to have multiple partnerships and also to work quite actively with their partners. The reasons given for engaging in partnerships are mainly increasing impact, leveraging funding, pooling expertise and sharing infrastructure. Most of the foundations in the sample described their partnerships with other organizations in positive terms, even though there seemed to be obstacles as well.

The most common partner for the surveyed research foundations is apparently the government, followed by other foundations. Foundations often mentioned their partnerships with funded researchers. An example of such a partnership is the long-term cooperation between a foundation and a researcher (or research group) in building up a research area at a particular university.

The classic funder–grantee relationship typically involves the grantee applying to the funder for resources to finance a project that the grantee has planned. The funder then decides to fund or not to fund the project, and the

[28] For a more in-depth discussion on foundation strategy, see Prewitt 2006.

relationship between the two parties ends when the final report is handed over to the funder. The kind of funder–grantee relationship that several of the respondents mentioned, however, is characterized by a more proactive and longer-term relationship, in which the funder sometimes identifies both the area of interest and also appropriate researchers. The funder then proceeds, in cooperation with the researchers, to build up the research area over time. Some foundations even go as far as describing the funded researchers as 'our researchers'. Most of the surveyed foundations and experts seem to agree that the ability to create long and close relationships with researchers is one of the most important characteristics of research foundations.

According to a description of a partnership involving one of the surveyed foundations and two other funding organizations, it proved to be very difficult for them to agree on the terms of the relationship, and in the end they had to write three separate agreements with the research group – something that made the work of the research group more difficult. This is especially common when the funders want to achieve different goals through the partnership, for instance if one organization is a foundation and the other a corporation. In such cases, agreements dealing with ownership of intellectual property developed in the project can be very complex. This complexity is of course compounded further if the funding organizations also come from different countries. One of the respondents developed the partnership description further by dividing it into partnership between funders and partnership between researchers. The respondent mentioned that the trend in that particular foundation was an increase in the numbers of partners on both sides, which made the partnerships more complex but also more fruitful.

One surveyed foundation suggested that international partnerships would be a useful tool in identifying and funding the best research projects on an international scale. According to this foundation, such partnerships would also be a way to overcome the current problem of lack of knowledge and immersion in foreign local research networks.

Innovative research projects are often high-risk projects, which require a high degree of trust between the partner organizations. One cornerstone in the building of inter-organizational trust is continuity in relations, something that foundations often seem to be able to achieve.

Innovative funding

Among the Swedish research foundations surveyed, one of the practices that stands out is the work of the Knowledge Foundation, which has been working with funding research profiles at universities in Sweden. One relevant

restriction in the charter of this foundation is that the majority of research projects must be partly financed by the local business sector in order to qualify for grants from the foundation (Prop. 1993/94:177; Sandberg 2005). These research profiles are fairly large and concentrated activities, and they can entail up to SEK 40 million (€3.9 million); so far 12 of these profiles have been funded. They aim to build up successful research environments and strategic profiles at universities together with the local business community. The profile should fit into the long-term strategy of the university, and it should be able to survive on other sources of funding after the profile grant has been closed down.

Even though the profiles are by far the most important form of funding, the Knowledge Foundation also works with what they call projects and platforms. Projects are smaller activities which might entail SEK 2–3 million (€195–293,000) a year over a period of 2 to 3 years and are required to be co-funded by the local business sector. Platforms, on the other hand, do not require co-funding and are larger, at SEK 10–20 million (€0.97–1.95 million); they aim to build up competence in order that universities have something to offer other funders in order to attract more funds. Projects and platforms can be seen as venture capital in the preparation and building of strong profiles (Sandberg 2005). These profiles have now been transformed into what the Knowledge Foundation calls 'KK-miljöer' (which are essentially enlarged research profiles) and are intended to make it possible for universities to develop strategic profiles in partnership with the business community, other organizations and society.

Another example is the Vårdal Foundation for Health Care Sciences and Allergy Research, which has been instrumental in establishing the healthcare sciences alongside classical medical research. Here the foundation form was used to change perspectives and structures – something it is very well suited for. This is also the way that the Riksbankens Jubileumsfond works (though on a smaller scale) with what they call *områdesgrupper*, where they identify an area worthy of research and one that is currently underfinanced (or understudied). The foundation then appoints a group that is responsible for developing the area further. Such a group normally works for five or six years; there were three such groups in 2008. The main objective of such a group is to map research needs and to stimulate dissemination of knowledge.

Looking to the future

When asked about expected fluctuations on research expenditure in the next accounting year (2010), most of the foundations (55 per cent) expect their

research expenditure to remain the same and 45 per cent expect to increase their R&D funding.

The main reason given for an expected growth in expenditure next year is increased return on capital. One foundation also mentioned that they had saved funds in order to be able to finance a larger project in the following year. Another factor mentioned was the projected removal of the 'university VAT' in 2009 (now implemented), which would enable foundations to grant more funds to projects conducted within universities, as these would no longer have to pay VAT. One of the foundations that expected a decrease in grants explained that this was due to lower returns on capital anticipated in the following year as a consequence of the financial situation.

Regarding future policy developments, several of the surveyed foundations emphasized that in the Swedish context foundations and their boards are bound by their charters. This means that, if a foundation is created with the purpose of supporting research, it can only do that, so it will remain almost entirely dedicated to research without needing further incentives, other than its charter, to so do.

However, the common and somewhat pessimistic perspective among the surveyed foundations is that the state does not do much to promote foundations' giving to research. On the other hand, experts on foundations argue that research foundations in Sweden are already tax-exempt.[29] At the moment a state commission is examining the tax issues regarding gifts and donations. This analysis might result in an increase in the number of tax-exempt areas for foundations' support. Hence, from the foundations' point of view, there might be positive changes on the way.

One of the surveyed foundations stated that the state's role should be to create a pluralistic research system and then to let the system govern itself. It is important for legislators to understand the different logics and legal requirements of different funders when legislation is written. However, nowadays, when reading through the different commission reports on research funding, foundations are largely absent.

Another often-cited policy aspect that could be changed in order to increase foundations' support for research is to reduce the overhead costs that universities charge to external research funders. The amount of overhead costs has been greatly debated and is still not settled. According to some legal experts, several foundations may have difficulty paying large sums in overhead costs since their charters forbid them to pay for administration.

[29] Foundations that support the strengthening of national defence, relief work among the needy, improving childcare and education, promoting scientific research and furthering cooperation between the Scandinavian countries are exempt from tax on income from capital.

Uncertainty about how regulations will look in the future may also have reduced the incentives to create new foundations. Several respondents to the Swedish survey commented on how important stable and predictable legislation is for the creation of foundations, since they (at least theoretically) are almost perpetually bound by their charter.

Several surveyed foundations emphasized the importance of convincing a greater number of potential donors to give more money to research and thus further developing the research arena. Here the lack of tax incentives related to donations is cited as the prime policy obstacle.

2.4.3 Applying the methodology

Previous data collection and existing data

During a project that took place in 2002/3 an extensive research database was constructed; this was made possible by financial support from the Riksbankens Jubileumsfond (Wijkström and Einarsson 2004). This database provides unique raw data for approximately 14,500 Swedish foundations, as of 2002. The data from the County Administrative Boards' registers has since been substantially improved. We have updated and completed the material through correction of existing register data or completion of missing data. During 2003 and 2004, for example, we were able to fill in the missing years of establishment for some 800 larger and/or older foundations, as well as missing information on individual foundation assets for another 600 foundations.

In parallel with this increase in the quality and range of the data in the database, we have also been classifying (coding) every individual public benefit foundation (in total approximately 11,500 foundations) according to two classification systems. We have studied each individual foundation purpose statement and classified them according to the ICNPO system (International Classification of Nonprofit Organizations), where the codes refer to the field of activity in which the individual foundation is engaged (Salamon and Anheier 1996). The other major coding exercise conducted is what we have called the 'sphere' coding. In this, we have identified the main type of affiliation for each foundation, for example whether it is primarily a government-related, a corporate or an independent foundation.

During the year 2003, we additionally collected data for a special sample of nearly 400 individual foundations in order to calculate a first-ever estimate of annual foundations' grants in Sweden. The foundations were selected from our database according to size, type, geographical distribution and relevant ICNPO field. After this stratified sampling, economic data concerning, for example, annual grants, expenditure and market value of the foundations' stock portfolios

was gathered through personal on-site visits at the premises of several of the County Administrative Boards, where annual reports and statements for all Swedish foundations are kept. For these categories, separate average ratios were calculated, and through our knowledge of total foundation assets in each of these populations, we were able to produce an estimate of the value of the total annual grants in each of the major categories.

Application of the FOREMAP methodology

Originally a sample of the 40 largest research foundations, based on the extensive database constructed during 2002/3 at the Stockholm School of Economics, was selected for the survey study. Seven foundations were added to this sample during the research process, so the total sample consisted of 47 Swedish research foundations.

The survey provided was sent out in January 2009, and in the case of a non-reply a reminder was sent in April. Altogether 16 foundations chose to fill in the survey, four declined and 27 did not reply at all. In order to give as complete a picture as possible, we therefore chose to use public data for those foundations that did not fill in the survey. Eleven of the foundations in the sample that did not reply to the survey have annual reports and/or data on grants on the internet. Information on the remaining 20 foundations was gathered from the County Administrative Boards in Sweden.

Altogether, the survey gathered information on 47 foundations which reported assets of SEK 107,180 million (€10.47 billion) in 2007 and which donated about SEK 3.8 billion (€371 million) to research.

The survey data was complemented by a subsequent interview study targeting foundation executives, experts on foundations and individuals with insight into state policy. An extensive literature review was also conducted within the study.

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3 Understanding European research foundations

3.1 Introduction

Foundations are a challenging group of organizations to document. Not only are they often discreet organizations, but their extreme diversity, in terms of mission and the various legal environments within which they operate, complicates attempts to document or classify them and their activities. The significant number of foundations further complicates things; there are over 119,000 public benefit foundations in Europe.[1] Documenting European foundations is therefore a particularly time-consuming exercise, which requires expertise and knowledge of the foundation landscapes in each and every European country, particularly those with no centralized database on foundations.

When is a foundation a foundation? The term 'foundation' – or *Stiftung*, *stiftelse*, *stichting*, *fondazione*, *fonden* and its equivalent in other European languages – is a defined term in a number of European countries. As a consequence, organizations referring to themselves as foundations in these countries must conform to a number of legal requirements. In others, the epithet 'foundation' is not protected and may be used indiscriminately by anyone and any organization. As a result, not all organizations that refer to themselves as 'foundations' are foundations in the strictest sense of the term. A famous example is the European Science Foundation, which is in fact not a foundation but an international association of research funders.

[1] University of Heidelberg Centre for Social Investment and Max Planck Institute for Comparative and International Law (2008), *Feasibility Study for a European Foundation Statute*.

In the course of the FOREMAP project and in this article, the term 'foundation' refers to organizations that satisfy the following functional definition, which is generally accepted by third sector researchers as characterizing what a foundation is, or more precisely, what a public benefit foundation is:

> [A foundation is an] Asset-based, purpose-driven, separately constituted, non-profit body with no members or shareholders. Foundations have established and reliable incomes, whether they be from an endowment or other sources. They focus on areas of public benefit ranging from the environment, social services, health and education, to science, research, arts and culture.[2]

This definition serves as a point of reference only. As the European Foundation Centre's (EFC) *Foundations' Legal and Fiscal Environments: Mapping the European Union of 27* and *Comparative Highlights of Foundation Laws* clearly illustrates, the definition of a foundation can differ from country to country, although foundations will share the common elements defined above.

The role of foundations in supporting research has been documented in a number of articles and publications. In May 2007, *Nature* even published a special on philanthropy and science funding. However, such publications are very often either thematically focused and look at a small number of foundations and their policies, or they provide a general overview of the importance and added value of research foundations in European science.

In a piece entitled 'Encouraging change, European foundations funding research', published in 2008, Wilhelm Krull[3] provides a good overview and examples of how European foundations contribute to the development of science and research on the continent. Building on the generally accepted premise that foundations' direct cash funding for research often pales in comparison to that provided by the public sector (at national and European level) and by industry, Krull highlights the key assets of research-funding foundations:

> Foundations can act autonomously in supporting the first experiments in new areas, in taking risk when exploring hitherto unknown territories, and in substantially encouraging frontrunners in institutional reform. Unlike publicly financed agencies, which are dependent on political decisions and have to provide equal opportunities for all, private foundations do not have to wait for political consensus. They can act much more freely, flexibly and quickly. For them,

[2] European Foundation Centre (2003), *Model Law for Public Benefit Foundations in Europe*.

[3] Secretary general of the Volkswagen Stiftung.

> the objectives to be achieved are always more important than bureaucratic rules and regulations.[4]

In addition, at local level, a number of studies have been produced, such as those by the Stifterverband für die Deutsche Wissenschaft[5] and Acri.[6] These provide a useful insight into foundations' support for research, but make it difficult to draw comparisons between countries since no standard tools or methodologies existed at the time to collect such data.

The objective of the FOREMAP project is to lay the groundwork for the collection of comparable data and information in order to understand how foundations support science across the European Union and the level of their support. The ultimate objective is to map research foundations across the EU.

The countries selected for the FOREMAP pilot study are Germany, Portugal, Slovakia and Sweden. They were selected on the basis of the relative strength of their respective foundation sectors, as well as on geopolitical considerations, in order to collect data in countries that were representative of the various research and philanthropic landscapes one can encounter in Europe. The data collected for each country provides an overview of its national foundation sector and its role in supporting research. It also helps to illustrate the characteristics of the research foundation sector in Europe.

Figure 39 Foundations surveyed in FOREMAP (2007)

	Germany	*Portugal*	*Slovakia*	*Sweden*	*Total*
Number of foundations surveyed	33	12	20	47	112
Assets (€)	18,398,561,615 (n = 29)	4,139,311,112	8,739,261	9,868,040,000	32,414,651,988
Total spending (€)	1,221,825,292 (n = 32)	171,037,200	5,249,485	368,259,000	1,766,370,977
Total spending on research (€)	748,991,893 (n = 30)	25,265,773	3,064,995	349,976,000	1,127,298,661

[4] Krull, W (2008), 'Encouraging change, European foundations funding research', in N MacDonald and L Tayard De Borms (eds), *Philanthropy in Europe: A rich past, a promising future*, pp 235–57. London: Alliance Publishing Trust.

[5] Donors' Association for the Promotion of Sciences and Humanities in Germany.

[6] Association of Italian Foundations and Savings Banks.

3.2 Sketching the landscape

Building on data from FOREMAP, as well as on the experience gathered by the EFC and through the work of the European Forum on Philanthropy and Research Funding, it is possible to sketch an overview of research foundations in Europe and to answer the following questions:

- Origin of funds
  Where do European research foundations draw their income from and does this have an impact on their funding policies?
- Expenditure
  How much funding do foundations provide? Is it really that small compared to overall public and industry funding, and if so, why are foundations important?
- Focus of support
  What are the main science fields benefiting from foundation support? To what extent can these be explained?
- Modes of action
  How do foundations support research, and why? What is the main process through which foundations allocate funding?
- Geographical dimension of foundations' activity
  Do foundations fund research beyond their borders? What are the limitations, and why?
- The role of foundations on the research scene
  How do foundations perceive their role in science? How does their perception match up to reality? What types of partnership do they develop with other stakeholders, and why?

3.3 General remarks

A foundation is an instrument for supporting public benefit objectives in a tax-efficient manner. Foundations may be grantmaking, operating (running their own programmes) or mixed, which do both; they may be created in perpetuity or with a limited timeframe.

Individuals and organizations that create foundations first and foremost have an objective and resources to allocate to that objective, before choosing the foundation as the best vehicle to use those resources to pursue their objective.

The scope of a foundation's activity is governed by its statute, the broadness of which may vary. A foundation's operations are directed by a board which must act within boundaries set by the foundation's statute.

It should be remembered that all foundations are of different size in terms of assets, spending and human resources, and this has an impact on the activity of a foundation.

In the 27 EU countries, research qualifies as a public benefit activity.

3.4 Origin of funds

The origin of funds of a research foundation, as is the case for other foundations, is closely linked to the circumstances that led to its creation. Where the funds come from also has an impact on how a foundation operates. Looking at the results of the FOREMAP analysis of research foundations in Germany, Portugal and Sweden, endowments are the most important source of income for research foundations. This is not the case in Slovakia, where fundraising and donations account for close to 50 per cent of income. One of the reasons for this is that since the move to a market economy Slovak foundations have not yet had time to create and grow endowments. A similar situation can be found in other eastern European countries.

Figure 40 Origin of funds of the foundations surveyed under FOREMAP (2007)

Origin of funds	*Germany n = 33*	*Portugal n = 12*	*Slovakia n = 20*	*Sweden n = 16*	*Four countries n = 81*
Endowment	25	8	17	15	65
Donations	8	6	17	2	33
Fundraising	2	1	16	1	20
Government funds	11	2	2	1	16
Service fees, sales	2	4	3	0	9
Other*	6	2	17	0	25

More than one source of funding may apply.

* Category 'other' includes: donors' contributions, income from companies, third-party funds/ contract research, income tax designation.

Endowments

Endowed research foundations usually fund their activity on the returns from their endowment capital, which can be invested in financial products or consist of shareholdings, property, patents or other holdings that generate financial

returns. Foundations with their endowments invested in the stock markets and related financial products see their income vary with the markets.

Foundations created in perpetuity generally use only the dividends and income from their capital to fund their research activity, thus maintaining their endowment and the income it generates.

Foundations may also spend down their endowment, usually as a result of a strategic decision by the founder or the board. This is the case with US foundation Atlantic Philanthropies, which decided to spend down $3.8 billion by 2016 with the objective of addressing an issue that needs immediate attention and support rather than long-term investment. As former Atlantic Philanthropies CEO John R Healy put it: 'If your foundation has a mission dealing with climate change or another pressing issue, there's no point dribbling out your endowment over years and years.'

Where do these endowments come from?

Donations in cash or shareholdings from initial founder

Many endowed foundations were set up by wealthy individuals, either during their lifetime or through their will, who transferred their wealth to the foundations they created in the form either of cash or of shareholdings in the companies they owned. Foundations such as the Wellcome Trust (UK) and the Robert Bosch Stiftung (Germany) are classic examples of research foundations created in this way: the Wellcome Trust was initially endowed with shareholdings in the Wellcome medical company founded by Sir Henry Wellcome, while the Robert Bosch Stiftung was endowed with a majority shareholding in the Robert Bosch company. However, each foundation has developed a different strategy in the management of the initial gift. Starting in 1986, the Wellcome Trust began to separate itself from the Wellcome Company in order to diversify its assets, while the Robert Bosch Foundation has maintained its shareholding in the company from which it draws an annual income. (It should be noted that the Robert Bosch foundation and company operate totally independently of one another.)

In the case of the Robert Bosch Stiftung and other research foundations whose capital consists of shareholding in industry, this has an impact on the type of research they fund. Generally, these foundations do not fund research in fields directly related to the companies in order both to maintain the independence of the foundation from the company and to avoid indirectly supporting the company, and thus illegally subsidizing it and compromising the foundation's fiscal status.

Public sources and state privatizations

In a number of countries, the privatization of industrial champions generated financial resources that governments decided not to cash in on, but to use to endow foundations, which have a legal form offering more flexibility in using the fund to contribute to public benefit. A notable example is the Volkswagen Stiftung, which was endowed on the proceeds of the part-privatization of the Volkswagen automobile company. It also draws income from dividends paid by Volkswagen to the state (*Land*) of Lower Saxony, an important shareholder of the Volkswagen Company, which passes them on to the foundation.[7]

In Poland, the Foundation for Polish Science (Fundacja na rzecz Nauki Polskiej) was endowed with the unused assets of the Central Fund for Development of Science and Technology, which was set up under communist rule and existed until 1990. Additional assets were transferred to the foundation in 2003 and 2004 as a result of the Act of 29 March 2000, which states that 2 per cent of funds raised from the privatization of wholly state-owned companies would be transferred to the foundation.

Italy is a philanthropic powerhouse with a significant number of foundations of banking origin endowed with considerable assets. Italian foundations of banking origin are products of a process that started in the 1990s with the object of separating the banking and philanthropic activities of the Italian savings banks and privatizing them. These foundations are important supporters of research. In its 2009 annual report, Acri, which represents 88 foundations of banking origin, highlights that the foundations devoted some 14 per cent of their spending in 2007 to supporting research.[8] The three largest such foundations are Compania di San Paolo, Fondazione Monte dei Paschi di Siena and Fondazione Cariplo, with combined assets of some €21 billion in 2007.

Property, patents and other sources of income generation

A number of foundations own property and patents from which they also draw income. These may be part of the foundation's original endowment or gifts, or they may have been bought with the objective of diversifying how the foundation invests its monies.

A number of research foundations also own intellectual property rights and patents resulting from projects they support. Some may draw income from these patents.

[7] Lower Saxony is the home of both Volkswagen and the Volkswagen Foundation.

[8] Acri (2009), *Italian Banking Foundations: Identity, roots for the future*. Thirteenth annual report.

Industry

Some research foundations are created and supported by companies in the context of their corporate social responsibility or corporate giving policies. The Portuguese Fundação Bial and Fundação GSKCS, linked respectively to the Bial and GlaxoSmithKline companies, are good examples of foundations that draw their income from annual, or multi-annual, donations from the company to which they are linked. These donations are often multi-annual in order to ensure the sustainability of the projects run by the foundation, but also to protect the foundation and its activities from commercial downturns.

Support may also take the form of personnel who are seconded to the foundations for varying durations. An example of this kind is the Schlumberger Foundation (France), which supports young female researchers from developing countries and was set up by the multinational oil and gas services company Schlumberger. In addition to receiving funding from the company, the foundation receives personnel time worked by company staff.

Even if these foundations support research in fields related to the activity of the supporting company, they will not support research directly relevant or linked to the company to avoid subsidizing the company's research activity and thus forfeiting their status and associated fiscal advantages.

Umbrella hosting

A number of European countries have a form of foundation with the legal power to act as an umbrella organization which hosts and administers funds on behalf of individuals or companies that do not wish to create their own legally independent foundations. An example of such a foundation is Belgium's Fondation Roi Baudouin.

Such umbrella organizations award funding for research and other activities on behalf of the foundations they host. In this way, Fondation Roi Baudouin awards every year over €1.1 million of prizes on behalf of the five foundations it hosts.

In France, the Fondation de France has a legal mandate to host and administer funds. This is also the case with the Institut de France, which hosts five French academies, including the French Academy of Science, and acts as an umbrella for the Fondation Rhône Alpes Future, which is dedicated to supporting research.

Fundraising and donations

Fundraising can be an important source of funding for a number of foundations, whether they are endowed or not.

A number of endowed foundations raise money from the public and receive donations. The Pasteur Institute (France) is such an example. In 2007 20 per cent of the foundation's income came from donations. Fundraising is therefore a significant element of the Pasteur Institute's funding policy. To this end, it has a dedicated fundraising office and raises funds from the public to support its activity. In such cases, fundraising is generally not linked to a specific scientific activity or programme but provides funding for general operations which the foundations can allocate according to their needs.

Other endowed foundations may also raise funds from the public for specific projects. This is a way of both increasing the financial resources dedicated to projects and engaging with the general population on specific issues.

A number of European research foundations, particularly in the medical sciences, operate purely on the basis of fundraising from the public and industry. This is the case, for example, with Cancer Research UK and with Telethon Italia in Italy.

Fundraising has an impact on how these foundations communicate with the public. A fundraising foundation not only seeks to publicize its mission and objectives but also, most importantly, tries to broadcast the ways in which the money it has received has yielded new knowledge and paved the way for new therapies. Communicating the outcomes and impact of the research it supports is a crucial element of a fundraising foundation's activity. By demonstrating the impact it is having, the foundation is able to maintain the public's commitment to its work and hence to encourage future donations and ensure the sustainability of its fundraising and research activities.

In spite of the volatility of fundraising, a number of these foundations do not restrict themselves to awarding grants to university researchers but also operate their own research laboratories. Frequently, these are foundations with high public visibility, which ensures more reliable public support.

Finally, there are foundations, endowed or not, that do not have a specific policy on raising money or receiving donations but which still receive legacies. They cannot, however, always accept them. Some foundations have to turn down legacies because the conditions imposed in the will on how the gift can be used are too constraining, or because the cost of measures to manage the donation as indicated in the will exceeds its value.

Tax designation

A number of countries have set up fiscal systems that enable taxpayers to channel 1 to 2 per cent of their income tax to non-governmental organizations

that work on public benefit missions. This 'percentage philanthropy' is particularly well developed in eastern Europe, where it has been adopted in Hungary (1996), Slovakia (1999), Lithuania (2002), Poland (2003) and Romania (2003).[9] Research, in these countries and across the EU27, is consistently recognized as being 'of public benefit', so research foundations can benefit from this source of income. In Poland, for example, the Foundation for Polish Science received some €22,000 between 2006 and 2008 to support the Homing Programme, which supports Polish researchers returning to work in Poland.

Government and public bodies

Governments have played an important role in both creating and providing funding for research foundations. A number of circumstances arise that push governments or public bodies to fund and establish private research foundations.

When a government creates a foundation, it is with a view to supporting a specific objective, often one that is shared between different public bodies or with private bodies and which the parties concerned consider would be best managed by means of a foundation rather than by a public agency or under another legal form. Work conducted by the EFC Research Task Force has found that, in the case of foundations created by a public body or bodies, the source of their funding generally remains public.[10] Some of these foundations are also able to raise funds from other sources.

An interesting example is the Alexander von Humboldt Stiftung (AvH) in Germany. AvH was re-established in 1953 by the German federal government as a tool to support foreign researchers coming to work in Germany. The funding structure of the foundation is such that it receives a majority of its funding from three German ministries, each with a stake in the mission of the foundation: the Federal Foreign Office, the Federal Ministry of Education and Research, and the Federal Ministry for Economic Cooperation and Development.

In certain cases, these public-origin foundations are created and funded by intergovernmental agreements to promote cooperation, scientific and other, between two countries. The Fondation France-Israel (France) is an example of a foundation that was created in order to promote cooperation, including a research programme, between two countries.

[9] N Bullain (2004), 'National percentage systems: a thumbnail sketch', *Social Economy and Law*, 7 (1), 8–9.

[10] EFC (2006), 'Who sets up foundations?'

In France, four public research institutes[11] came together to create Agropolis Fondation. Established in 2007, the foundation aims to promote and support interdisciplinary research and higher education in agriculture and sustainable development. It also aims to broaden international partnerships in these areas. By creating a private foundation, these four organizations have equipped themselves with a more reactive and flexible structure for managing and receiving donations and for funding research activities with lighter administrative procedures.

There are some foundations, such as the Pasteur Institute, that were created independently of government, yet also receive government funding. In 2007 the Institute received some €57 million in state funding.

Just like any other research institute, foundations, and in particular foundations running their own laboratories, apply for public funding through competitive programmes both at national and European level. One example is the Foundation for Polish Science, which successfully applied for support from the European Structural Funds Programme to fund the development of its activity. As a result, the foundation will be able to substantially increase its research funding, up from €5.5 million in 2008 to some €12 million in 2009.

In the early 1990s, the Swedish government established wage-earners' fund foundations (*löntagarfondsstiftelserna*) whose activities were directed towards research, more specifically towards supporting research that might maintain the competitiveness of Swedish industry.[12] Eleven wage-earners' fund foundations were created, including the Swedish Foundation for Strategic Research, the Foundation for Strategic Environmental Research, the Knowledge Foundation and the Swedish Foundation for International Cooperation in Research and Higher Education. Their assets came from wage-earners' funds that had been set up by the previous government (i) to contribute to a fairer distribution of income among different groups in society; (ii) to reduce the tendency for large corporate profits to lead to increased wage drift and inflation; and (iii) to counteract an increased demand for venture capital.[13]

In 2003 the French government launched an action plan to support and foster the creation of foundations supporting research. Under this plan, the government reviewed its legislation to make it more favourable to the creation of foundations – two new foundation statutes were created specifically for

[11] Institut National de la Recherche Agronomique (Inra), Centre de coopération internationale en recherche agronomique (Cirad), Institut de recherche pour le développement (IRD) and Ecole Supérieure d'Agronomie de Montpellier.

[12] For further details, see the Swedish country report, p 96 above.

[13] F Wijkström and S Einarsson (2004), *The Swedish Foundation Sector: Its size, scope and structure in the early 21st century*. Stockholm School of Economics.

research-supporting foundations[14] – and funding of €236 million was allocated to encourage the creation of new research foundations and to support existing foundations by match-funding the funds these foundations raised to grow their endowment.

In Sweden, to celebrate its tercentenary in 1968, the Swedish Central Bank made a donation to promote academic research in the country. This gift formed the initial endowment of the Stiftelsen Riksbankens Jubileumsfond, a funder of the humanities and social sciences.

3.5 Expenditure

When considering research foundation spending, two approaches may be taken. We can either look at overall spending on research, including funding spent on foundations' own research programmes; or we can look at floating funding that relates to the funds available to the research community through calls for proposals. In any case, the overall amount of philanthropic funding on research can generally be considered very small compared to that invested globally by public authorities – local, national and European – and industry. A recent study by the Donors' Association for the Promotion of Sciences and Humanities in Germany showed that foundations' support for research represents no more than 0.5 per cent of total overall research spending.

Statistics from Eurostat for 2005 indicate that in the various EU27 countries the amount of funding for research provided by the private non-profit sector amounted to 1.5 per cent of overall spending (see figure 3, p 35). Research foundations form only one element of the private non-profit sector. However, it should be noted that foundations may not always be counted as part of the private non-profit sector by the national statistics offices which provide core data to Eurostat. Indeed, depending on the origin of their funds, foundations may appear as government sector or business enterprise sector, as well as higher education sector if they operate as educational institutions.

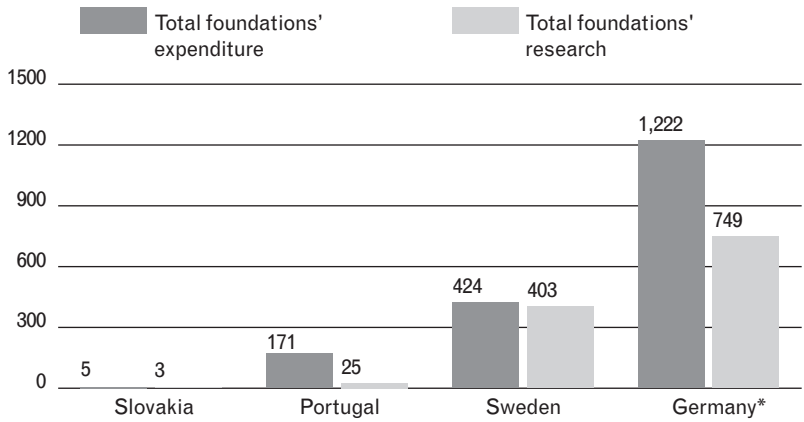
One caveat is that in some very specialized fields and unique situations, the support provided by foundations can exceed that of the state and other players. In the UK, for example, the Nuffield Foundation is the largest provider of support for research into the workings of the British system of civil and family law.

The foundations surveyed in the course of the FOREMAP study account for some €1.1 billion in spending on research. It is interesting to note that – except for Sweden, where the foundations surveyed dedicated 95 per cent of

[14] Fondation de coopération scientifique and Fondation partenariale.

their funding to research – the share of overall spending dedicated to research varied from 14.77 per cent in Portugal (this should increase as Fundação Champalimaud becomes fully operational) to between 60 and 65 per cent for Germany and Slovakia.

Figure 41 Share of total expenditure dedicated to research (2007)



The data in the graph is derived from the 112 foundations surveyed in the FOREMAP study (see figure 39 above).

*These figures include two foundations with different reference dates: 2008 (€51,129,190) and 30 September 2007 (€22,900,000).

3.6 Focus of support

Scientific fields

It is not possible, on the basis of the results of the FOREMAP pilot studies, to extrapolate trends in relation to the preferred fields of support and mode of action among research-supporting foundations in Europe. Every European country has a specific profile reflecting the nature of its own philanthropic sector and research environment.

If we consider the spending of the research foundations surveyed for the FOREMAP study in Sweden, which has a well-developed and strong foundation sector, it is clear that there is no dominant field of support.The figures for the foundations surveyed in Germany show that the natural sciences are clearly the biggest beneficiary of foundation funding. However, this is largely due to the fact that DESY (German Electron Synchrotron) is a foundation with a very substantial budget.

Figure 42 Breakdown of research expenditure by country and field (2007)

Field of expenditure	*Germany n = 32*	*Portugal n = 12*	*Slovakia n = 20*	*Sweden n = 41*	*Four countries n = 105*
Natural sciences	73.19%	10.70%	4.17%	10.15%	48.75%
Social sciences	6.81%	16.91%	1.13%	28.36%	14.21%
Medical sciences	6.85%	51.49%	79.61%	18.81%	11.42%
Engineering and technology	2.93%	3.64%		25.97%	10.85%
Humanities	5.98%	11.72%		8.96%	6.91%
Agricultural sciences	0.17%	0.07%		7.76%	2.8%
Other*	4.07%	5.47%	15.09%	0.00%	5.07%

Percentages of total annual research expenditure of the 112 foundations surveyed in the FOREMAP study (see figure 39).

* Category 'other' includes: interdisciplinary research, law, research in energy, child obesity, university research, nuclear energy and other non-specified fields.

In Portugal and Slovakia, the medical sciences are clearly the biggest beneficiaries of the foundations surveyed. Anecdotal evidence suggests that this is also the case in the UK, where the Wellcome Trust provides funding for medical research on an equal footing with the public Medical Research Council. There are other very strong fundraising foundations such as the British Heart Foundation and Cancer Research UK (CRUK), which raise a large amount of funds from donations. According to its 2007/8 annual report, CRUK spent £333 million (approximately €386 million) on research and raised some £420 million (about €480 million).[15] Further research will be necessary to confirm this.

There is further evidence, both from the foundations surveyed in FOREMAP and from other European countries, that fundraising research foundations are mostly active in supporting the medical sciences. This is due to the fact that medical research lends itself to fundraising, as donors can readily relate to the research undertaken and appreciate the impact it might have on their lives. It could also be argued that these foundations are the most visible because of their fundraising activity and the nature of the research they support. However, this should not lead us to conclude that the medical sciences are the biggest beneficiaries of foundations' research support in Europe as a whole, even if this is the case in some countries.

[15] Cancer Research UK (2009), Annual report and accounts 2007/8.

Indirect support for research

The funding that foundations provide for research is not only focused on supporting science; it is also directed at activities and initiatives that indirectly support research. These include provision of funding for research infrastructure, support for researchers' careers, dissemination of research results, and so forth.

Figure 43 Breakdown of funding dedicated to transversal research activities by country (2007)

Transversal research activities	*Germany n = 29*	*Portugal n = 9*	*Slovakia n = 20*	*Sweden n = 16*	*Four countries n = 74*
Infrastructure and equipment	52.32%		77.97%	80.98%	57.05%
Researcher mobility and career development	23.28%	76.65%	4.27%	14.14%	21.75%
Dissemination of research	1.35%	15.76%	17.76%	4.50%	1.93%
Science communication	2.07%			0.39%	1.79%
Technology transfer	0.43%				0.36%
Other*	20.55%	7.59%	0.00%	0.00%	17.12%

Percentages of total annual research expenditure of the foundations surveyed under FOREMAP.

* Category 'other' includes: research projects/prizes/awards, research promotion of universities/ foundation professorships, project partnerships that facilitate other activities.

Researchers' careers

Europe's research foundations support researchers' careers by funding doctoral research and postdoctoral fellowships, funding chairs, and supporting researcher mobility with travel awards. This is mostly the preserve of grantmaking or mixed foundations rather than operating institutions.

Foundations in Germany supported the first scientific postgraduate programmes, which have since been taken over by the German Research Foundation (Deutsche Forschungsgemeinschaft).[16] The Donors' Association for the Promotion of Sciences and Humanities in Germany (Stifterverband für die Deutsche Wissenschaft) is also very active in this field, funding over 200 professorships.

[16] The central, self-governing research funding organization supporting research in universities and public research institutions. It is not a foundation.

In 2008, in Portugal, Fundação Calouste Gulbenkian initiated a programme in which it teamed up with Fundação Champalimaud, the Portuguese Ministry of Health and the Portuguese Foundation for Science and Technology. Its specific aim was to foster and support high-quality medical research undertaken by physicians as part of a long-term professional project.

Another example is the Canon Foundation in Europe. Based in the Netherlands, it funds fellowships for European researchers in the early stages of their career to spend between three months and a year doing research in Japan. A similar arrangement allows Japanese researchers the same opportunity to spend time in Europe.

Five European foundations[17] support the careers of African researchers working in the field of neglected diseases in African universities and laboratories. Under the Neglected Tropical Diseases programme,[18] the foundations fund doctoral studies, postdoctoral fellowships, study exchanges with non-African laboratories, and mentoring programmes with experienced researchers.

Complementary research activities

The area of 'complementary research activities' is one in which the diversity of Europe's research foundations as an asset for European research is most obvious. Here we can see the sheer diversity of initiatives run and supported by foundations, too numerous to describe in a short essay. The following is a selection of interesting and noteworthy initiatives run by foundations.

Science communication

Robert Bosch Stiftung runs a programme entitled 'Journalism Meets Research' (Journalisten in der Forschung) which is aimed at helping science journalists from print, radio and television to take time out to immerse themselves in science. Under the programme stays and visits to laboratories by journalists are supported by the foundation, which in certain circumstances may also subsidize the employment of temporary replacement journalists. The foundation also runs a programme of short study trips to European research facilities for journalists. In 2008 a selection of journalists was invited by the foundation to Brussels and Strasbourg to learn more about European research policy.

[17] Nuffield Foundation, Fondation Mérieux, Volkswagen Siftung, Fundação Calouste Gulbenkian and Fondazione Cariplo.

[18] www.ntd-africa.net.

Art and research

Fundação Champalimaud in Portugal, Europe's most recent large research-funding foundation (founded in 2004 with assets of some €460 million), supports research exclusively and works to combine the arts and sciences in its activities. The foundation is building the Champalimaud Centre for the Unknown, a new biomedical research centre, which will include an exhibition centre and open-air amphitheatre.

Helping young researchers network and meet accomplished scientists

Networking is essential for young researchers to form the contacts that will be important in the development of their careers. Foundations were at the source of two innovative initiatives in Europe that provide young scientists with such an opportunity. These are the Euroscience Open Forum (ESOF) and the Lindau Meetings between promising young researchers and Nobel prize-winners.

ESOF is a conference that takes place every two years and brings together young and established scientists, the press and the public.[19] ESOF started life as a bottom-up initiative of Euroscience (an association of scientists and research administrators set up to promote science and technology), which was supported very early on by a number of foundations. These foundations played a crucial role in establishing ESOF, as public funders were reluctant to support an event that was not a proven concept. ESOF is unique in being a multidisciplinary conference with many strands, including a scientific programme, a career programme, a public outreach programme, informal debates with high-profile researchers, etc.

The annual Lindau Nobel Laureate Meetings started in 1951 and are supported by a number of foundations and private donors.[20] They bring together promising young scientists from across the world to debate science and research with Nobel prize-winning scientists in various formal and informal settings across the German town of Lindau.

Engaging with society

The engagement of science and society is another field of interest where foundations are active. This can be achieved through scientific exhibitions. For instance, Fundação Calouste Gulbenkian (Portugal) inaugurated an exhibition on Darwin in early 2009 as part of the activities it organized to mark the 200th anniversary of his birth. The exhibition was launched in Lisbon in 2009, travelled to Madrid in the same year, and is due to be in Paris in 2010.

[19] The 2010 ESOF conference takes place in Turin (www.esof2010.org); Dublin is the host in 2012.

[20] www.lindau-nobel.de.

In Spain, many universities have their own foundation whose role is not primarily to raise funds or manage endowments but to act as a link between the university and the community.

'Meeting of Minds' was a project coordinated by Fondation Roi Baudouin.[21] Its objective was to get citizens involved 'in assessing and publicly discussing the issue of brain science with relevant research, policy and ethics experts, various stakeholders as well as representatives of European decision-making organizations'. Some 126 European citizens took part in the project, which led to the publication of a report on issues related to brain research. The report contained 37 recommendations on the ethical, legal and social implications of advances in brain science, which were presented to European Union decision-makers.

Managing university endowments

Foundations can be created with the objective of managing universities' endowments and attracting donations. In December 2004 the European Commission convened an expert group to look into the role of foundations and the non-profit sector in boosting R&D investment in research. One of the recommendations of the group was that governments and universities should explore ways for universities to create foundations or to transform themselves into autonomous foundations (though not exclusively) as a means to attract donations. In its report, the group reflected on how universities would benefit from setting up their own foundations:

> Under these circumstances, individuals and foundations could contribute large sums to universities to support research, either directly or indirectly through buildings, infrastructure or faculty positions. Even in a modest state university in the US it is possible to raise some $80 million per year to support research. If this could be replicated across Europe, a large sum would be created and made available for research.[22]

In 2007 the French government decided to enact a law on university autonomy which included provision for universities to set up foundations aimed at supporting their own initiatives. By 2010 some 60 universities will be in a position to set up foundations, many with the objective of using them to build endowments.

[21] www.meetingmindseurope.org.

[22] European Commission (2005), EUR 21785, *Giving More for Research in Europe: The role of foundations and the non-profit sector in boosting R&D investment*.

Engaging young people/women in science and scientific careers

In a June 2007 report, a high-level group of the European Parliament, headed by former French prime minister Michel Rocard, concluded that, in order for Europe to face up to the deficit in researchers it would face over the coming years, it needed to get young children interested in scientific careers. Many foundations are running initiatives to arouse interest among children and the young in science and scientific careers.[23] Others run programmes specifically targeted at encouraging women to enter into scientific careers. The International Polar Foundation, set up in Brussels in 2002, was created to finance and run the new Princess Elisabeth Antarctic research station. In parallel, the foundation runs a number of programmes linked to a second aspect of its mission, which is to 'communicate and educate on Polar research as a way to understand key environmental and climate mechanisms'. This includes the 'Warm up with puzzles . . . cool down with experiments' programme for schools, which aims to educate young children on climate and includes a module to encourage young girls to consider scientific careers.

The Daphne Jackson Trust (UK) runs a fellowship programme to support a return to science and engineering careers after a break. Although not directly targeted at women, the fellowships provide considerable support to women scientists returning to their scientific careers after having taken time out to start a family.

Creating new centres of research/schools

A number of foundations have also funded the establishment of new research institutes. In Germany, the ZEIT Stiftung Ebelin und Gerd Bucerius founded in 2000 and now funds what is today the country's first private law school and research centre: the Bucerius Law School. The school was created with the philosophy of the foundation, which seeks to 'encourage future generations of trained specialists and support talented students, but also to stimulate fresh ideas in the educational sector'.

Beyond the science laboratory

For foundations that support science and research, ensuring that their funding has an impact on the development of new knowledge and on society also means making sure that the results of the projects they have funded are exploited to their full potential. They are therefore keen that research results are not only widely disseminated, but also give rise, where possible, to new applications or

[23] European Commission (2007), EUR 22845, *Science Education Now: A renewed pedagogy for the future of Europe*.

therapies that have a positive economic and human impact on society. To this end, foundations develop policies for managing intellectual property rights resulting from the work they support and look to support technology transfer and innovation activities. However, they may not always be in a position to get actively involved in this process.

In Germany, for example, some foundations are concerned that by funding innovation and becoming engaged in revenue-generating activity they are putting at risk their tax-exempt status as a non-profit public benefit organization. German foundations may engage in commercial activity, but they remain exempt from tax (*Zweckbetrieb*) only if such activity is necessary to pursue their public benefit purpose and they do not thereby compete with for-profit organizations. For this reason, they are wary of supporting activity of this kind. Unrelated commercial activity (*wirtschaftlicher Geschäftsbetrieb*) is taxed if the income amounts to more than €35,000.

In countries such as Italy, foundations can engage in economic activities that are directly related to their own field of operation, and as such they may actively support technology transfer and innovation. However, there are restrictions in that the commercial activity of the foundation must not be dominant. Foundations can also be major shareholders in companies, but again with limitations (foundations of banking origin, for instance, may only be major shareholders in companies that are related to the public benefit purpose of the foundation). If a foundation directly manages a company and interferes with its board, its major shareholding would be considered commercial activity. Examples of foundations that are active in technology transfer and innovation activities by setting up companies include Fondazione Monte dei Paschi di Siena (MPS), which set up the company Siena Biotech, in which it is a major shareholder, in order to support 'the drug discovery process from exploratory target identification to clinical studies'.

MPS is also a founding member of the Toscana Life Science foundation, which operates as a technology park bringing together local government, universities and business to foster an enabling environment for innovation. In northern Italy, Fondazione Cariplo followed a similar pattern when setting up Fondazione Filarete to 'leverage the relevant intellectual and financial resources present in Lombardy and Italy' in order to support entrepreneurship in biopharmacology and biomedicine. Partners in the Fondazione Filarete also include the University of Milan, the Intesa Sanpaolo bank and the Milan Chamber of Commerce.

Science for informing policy

While some might consider that science, in its purest form, should only be concerned with the pursuit of new knowledge for its own sake, it can, of course, be applied to technological development and to informing policy-making. Foundations in Europe are also involved in supporting research, mostly in the social sciences, not for its own sake but to inform their activities in the social welfare and humanitarian fields. Such foundations may not consider themselves as funders of research. An example in the UK is the Joseph Rowntree CharitableTrust, which is a foundation that supports social sciences research in order to inform its own activities and also to provide evidence to encourage policy change.

In such cases, a foundation faces two important challenges: (i) ensuring that the research they fund is of high quality, which can be a challenging task if the foundation has no knowledge of and experience in commissioning research from scientists; and (ii) ensuring that results are communicated to the relevant stakeholders and that they are able to understand and make best use of them. A number of organizations, for instance in Germany and the UK, provide support and training for these foundations.

In Spain, an interesting situation arose when the charity Caritas, which is involved in fighting poverty, decided to create a foundation dedicated to researching the root causes and phenomena behind poverty, in order to better inform its charitable work and to provide the evidence needed to promote policy change.This foundation, Fundación FOESSA (Fomento de Estudios Sociales y Sociología Aplicada), is dedicated to undertaking applied social and sociological research in Spain. It regularly publishes an authoritative study on poverty and exclusion in Spain, called *Informe FOESSA sobre exclusión y desarrollo social en España*.

3.7 Modes of action

Foundations' funding can be directed towards the funding of programmes where funds are awarded in a competitive process (grantmaking foundations); or funds can be used to support a foundation's own research laboratories (operating foundations); or foundations may work in both of these ways, operating their own laboratories or research hospitals while funding further research through competitive calls.

Figure 44 Breakdown of funding mechanisms by country (2007)

Funding mechanisms	*Germany n = 30*	*Portugal n = 12*	*Slovakia n = 20*	*Sweden n = 16*	*Four countries n = 78*
Financial					
Own programming costs	64.86%*	47.88%	78.43%	2.38%	54.69%
Grants	33.10%	46.10%	21.57%	96.83%	43.35%
Awards and prizes	1.95%	5.42%		0.79%	1.87%
In-kind donations	0.09%	0.59%			0.09%

The data in the graph is derived from the 112 foundations surveyed in the FOREMAP study (see figure 39, p 123).

*The German synchrotron facility (DESY) is a private operating foundation and accounts for a very large share of Germany's own programme funding.

Grants

Grantmaking foundations provide support to research projects mostly through competitive funding structured around calls for proposals. These foundations operate research programmes that are very often run in a similar fashion and with equal rigour to other research-funding agencies, although their administrative dimension will be smaller. Calls are published regularly in the context of research programmes that reflect the foundation's strategic plan; proposals are evaluated by peers; researchers report on the progress of their research and how the grant has been spent; and so on. A number of foundations also allow themselves the flexibility to fund 'out of the box' or timely projects which cannot be funded through their established programmatic frameworks and yet which converge with their objectives.

There is debate over whether or not research grants awarded by foundations should cover overhead costs. Indeed, many foundations consider that it is not their role to take the place of government, and that government is ultimately responsible for the upkeep and general operation of public universities. As a result, some foundations will exclude funding for overhead costs in their grants. This can place universities in a difficult situation if they are not able to cover the related overhead costs from other funds. Some governments, such as in the UK, have recognized this issue and set up special funds to cover the overhead costs incurred by universities in the context of projects supported by foundations.

Foundations are also attentive to the issue of VAT (Value Added Tax), which diverts money away from the research they are funding. In the UK, the Wellcome Trust calculated that in 2006 it lost some £8.7 million (about €10 million) to VAT. Turning to the situation in Sweden, the recent removal of VAT on universities has seen some foundations reduce spending or postpone grants until the new VAT regime is in place.

Operating own research (own programming)

Some of Europe's most important foundations are operating foundations, or mixed grantmaking–operating foundations. This means that their resources are allocated to supporting their own research activities and running their own laboratories. In addition, such foundations may seek extra funding by applying for grants under programmes funded by public research councils or indeed other foundations.

For some foundations, this is the main focus of their activity, and they are referred to as operating foundations. Examples are the Institute of Tropical Medicine in Antwerp, Belgium, and DESY (Deutsches Elektronen-Synchrotron), the German synchrotron.

There are also some foundations that provide competitive funding for research, while also running their own laboratories. One such foundation is Fundação Calouste Gulbenkian in Portugal, which also runs the Gulbenkian Science Institute, a biomedical research institute. The institute brings together some 100 scientists, 100 PhD students, and a further 40 undergraduate and Masters' students, supported by 60 technical staff.

Prizes

A number of foundations are involved in supporting prizes of national and international renown. Prizes are a powerful instrument for supporting research by recognizing researchers' achievements and an effective way to 'stimulate attention and drive innovation in a highly leveraged and result-focused way'.[24] The Nobel prizes are the most famous of those awarded by foundations. The Nobel Foundation, created by the will of Alfred Nobel, manages his assets to fund the prizes. It is unique in that its main activity is to fund prizes; other foundations fund prizes as one element of their activity. A more recent example is Fundación BBVA, which in 2008 launched a new Frontiers of Knowledge and Culture Award to recognize and encourage world-class research and artistic creation that has broad impact, is original and has strong theoretical significance.

[24] McKinsey & Co (2009), *And the winner is . . . Capturing the promise of philanthropic prizes*.

The value of prizes varies greatly from symbolic amounts to substantial sums. Each Nobel prize comes with an award of 10 million Swedish krona (about €950,000), an amount that is shared in the case of multiple recipients of a single prize. BBVA prize-winners are awarded €400,000.

Donations to universities

In addition to providing support for research as previously described, Europe's foundations also support research, more indirectly, through the gifts they make to universities outside their regular grantmaking programmes. Universities are the cornerstones of European research because they are responsible for training researchers as well as undertaking research. Universities represent 20 per cent of European research and the majority of fundamental research (80 per cent), and employ one third of European researchers.[25]

A number of family foundations and other smaller foundations regularly make gifts to universities, just as any alumni would do. Many universities publish a list of their donors, and these often feature donations from medium- to small-sized foundations.

On an ad hoc basis, foundations may also provide very large gifts to research organizations outside their programme structure.The most important such gift in Europe came in 2007 – the €200 million support provided over 5 years by the Jacobs Foundation, based in Switzerland, to what is now the Jacobs University in Bremen. A more recent example, in 2008, was the £82 million (about €93 million) gift from the Gatsby Foundation to the University of Cambridge to fund a new Sainsbury laboratory for plant science. Such gifts, which receive a great deal of press attention, very often come as a result of the foundation and grantee institution developing a long-standing relationship of trust through smaller grants and cooperation.

3.8 Geographical dimension of foundations' activity

The activity of a research foundation is driven by two factors: its statute, which defines the object of the support it provides – which may or may not include a geographical restriction; and its desire to fund excellence in science wherever it may lie.

A foundation's activity is constrained by the legal environments in which it operates and by other factors, including cultural and linguistic issues, which influence its decisions to operate beyond its national borders. Statistics

[25] European Commission (2005), *European Universities: Report by the forum on university-based research*.

from the countries surveyed by FOREMAP and evidence from other countries support the statement that when funding research, the main focus of European foundations is supporting R&D in their own country. There are two reasons for this:

- A foundation's statute, or national law, defines the geographical focus of its activity from which it cannot deviate.
- A foundation faces too many barriers to develop its activities abroad. These may be legal (administrative burden and cost to foundations of dealing with a diversity of national legislations, of setting up branches in other countries or of getting other countries to recognize their public benefit status); fiscal (non-resident foundations may suffer tax discrimination); or cultural (particularly in terms of communication). A critical tool that would help in this respect, at least across Europe, would be a European Foundation Statute that removed a number of these hurdles, thus facilitating and encouraging foundations to develop cross-border activities in line with their statutes. Current barriers to cross-border activity are costing European foundations around €100 million a year. In addition, there are other costs (costs of foundation seat transfer, costs of reduplication, etc) that cannot be calculated but which are certainly higher.[26]

The fact that foundations, at least in the four countries surveyed, only spend a limited share of their resources abroad does not signify that they are not open to the rest of the world. Many of these foundations are present internationally even if their funding is directed locally. To give just one example, the Alexander von Humboldt Stiftung (see p 130 above) funds scholarships and chairs to host in Germany the brightest researchers from abroad. Other foundations may fund the national dimension of a multinational research programme.

There are very good reasons why a foundation may fund research beyond its borders:

- Such activity may be part of its mission as defined in its mission statement. The Fondation Mérieux in France is a high-profile European foundation which conducts extensive activity outside its country of origin. This is linked to the foundation's mission: it is dedicated to controlling infectious diseases in developing countries.
- It may seek to address worldwide challenges that can only be met through international scientific efforts. Security, for example, is a

[26] University of Heidelberg Centre for Social Investment and Max Planck Institute for Comparative and International Law (2008), *Feasibility Study for a European Foundation Statute*.

Europe-wide issue which has driven three European Foundations (Volkswagen Stiftung, Compagnia di San Paolo and Riksbankens Jubileumsfond) to develop an international five-year research and training programme for postgraduates entitled 'European Foreign and Security Studies Policy Programme'. Through this programme the foundations fund conferences and training programmes for relevant postgraduate researchers from Europe and neighbouring countries.

Figure 45 Breakdown of foundation expenditure by geographical focus (2007)

Geographical focus	*Germany n = 31*	*Portugal n = 12*	*Slovakia n = 20*	*Sweden n = 16*	*Four countries n = 79*
Country level	57.78%	79.27%		24.00%	52.78%
Regional level	31.23%	5.86%	96.00%	73.60%	37.51%
International	9.83%	14.87%	4.00%	0.80%	8.51%
EU level	1.17%			1.60%	1.20%

Percentages of total research expenditure of the 112 foundations surveyed in the FOREMAP study (see figure 39).

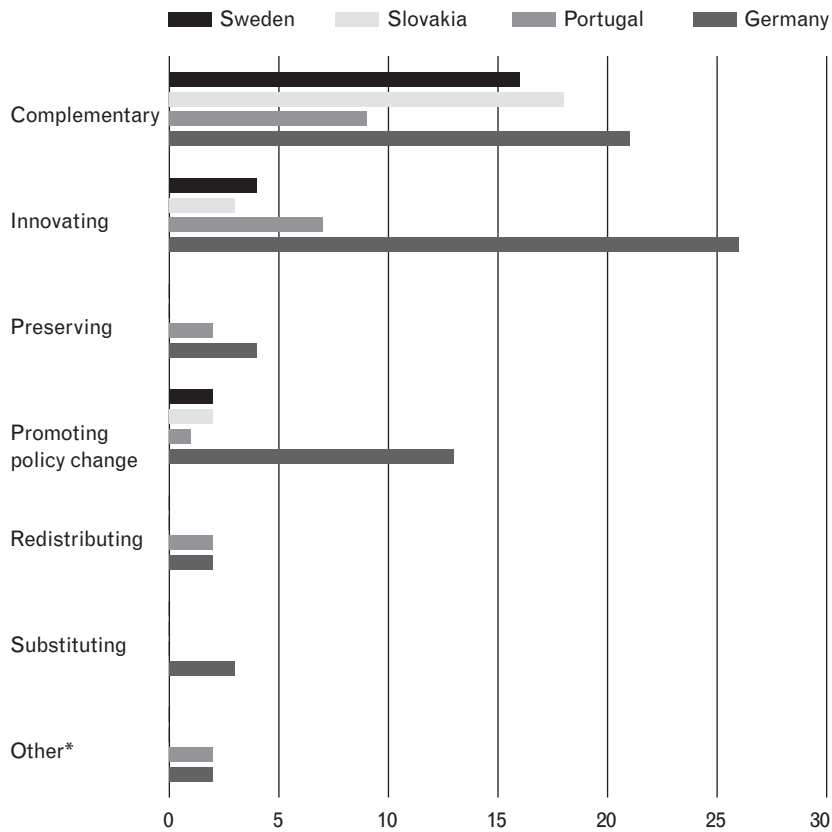
3.9 The role of foundations on the research scene

Foundations are one of many players in the research landscape. They do not see themselves as a substitute to public funding, not only because they can never mobilize sums equivalent to public spending on research, but because funding research and research infrastructure is part of the mission of a state. The diversity, complementary nature and assets of public, industrial and philanthropic sources of research funding are important elements in ensuring a healthy research environment. However, as we can read in the Sweden report, this is not always such a straightforward issue. Some foundations have such strict statutes that if the state withdraws from funding an area of research where the foundation operates, it cannot, as a matter of fact, help but take over from the state. This is confirmed by the FOREMAP study results, which found that 'complementing public/other support' is the principal role that the surveyed foundations see themselves playing in the R&D sector.

Foundations have the flexibility to be innovative in how they identify research fields to support, with some foundations going so far as to seek out those areas that are underfunded or understudied. This is the case with the

Riksbankens Jubileumsfond, which appoints groups that are responsible for identifying and developing such areas over a period of 5 to 6 years.

Figure 46 How foundations see their own role (2007)



Based on the foundations surveyed for the FOREMAP study.

* Category 'other' includes: 'research in areas neglected so far'; 'conveys science to the public'; 'research and political consulting'; 'promotes the annual award Prémio de Ciência and a conference on a scientific subject'; 'promotes international partnerships'.

The real added value of foundations, therefore, comes from their ability to take risks or innovate in how research is undertaken and funded. For this reason, it is important for foundations to work with other research stakeholders in order that new concepts and approaches that have been proven through initiatives they have supported are taken up and scaled up.

Gripenet (www.gripenet.pt), an online monitoring system developed in 2005 by Fundação Calouste Gulbenkian, is an example of how innovative work

by foundations can be taken up and mainstreamed within public services. The system collects data about flu epidemics and is used in the development of mathematical models for a better understanding of flu epidemiology.

Then there is the question of partnerships. Where foundations are grantmaking institutions, all their work is done in partnership with research-operating organizations, which in Europe are mostly universities. Both universities and foundations are looking to develop the right conditions for their partnerships to flourish.

Foundations are also increasingly working to develop partnerships with other private and public research stakeholders, as it affords them the opportunity to pool resources, extend the reach of their work, leverage more funding, and bring together skills in the pursuit of their goals and mission. Such partnerships also bring new practical and cultural challenges: balancing the relative visibility of partners in joint projects, for instance, and joint management of projects and of their outputs and outcomes, including intellectual property rights.

These partnerships may be short-term, one-off initiatives or long-term relationships. In Germany, the Wissenschaft im Dialog GmbH (Science in Dialogue), a public–private partnership involving foundations set up in 1999 to improve communication in science, has been institutionalized and has even extended its activities beyond Germany.

4 From snapshot to canvas

Mapping foundations' support for research across Europe

With the FOREMAP project, the European Foundation Centre (EFC) has developed a mapping methodology and tools to collect comparable qualitative and quantitative data on research-funding foundations in Europe. These tools were piloted in four EU countries (Germany, Portugal, Slovakia and Sweden) which were chosen as a typical cross-section of the diversity of the EU philanthropic and research sectors. The tools were then revised in the light of this first experience.

In order to encourage and support the development of further mappings, third sector researchers gathered in Brussels in September 2009 for a workshop with representatives from research foundations, Ministries of Higher Education and Research from EU member states, and European institutions. The purpose of the workshop was to reflect on:

- how various stakeholders could benefit from knowing more about foundations' support for research;
- the best ways and means to map research foundations, building on the FOREMAP work.

4.1 Why is it useful to document foundations' contribution to R&D?

The information collected in the four countries using the FOREMAP approach provides an interesting overview of research foundations and their contribution

to the national research effort. By extending the mapping to the rest of the EU, it will be possible to collect information useful to:

- **European research foundations:** helping them to develop their activity by increasing their knowledge and understanding of their European peers and by identifying new approaches and practices to research funding which they could implement. For foundations active in advocacy, this greater understanding will allow them to support their work by illustrating the size, role and importance of the sector in funding science.
- **Governments** (national and European): providing them with a better understanding of the sector and allowing them to give fuller consideration to the role and important contribution of research-funding

Figure 47 Overview of benefits and beneficiaries of better knowledge of research foundations

	Informing research funding	*Contributing to the debate on science funding*
Foundations	– Identification of new practices and potential partners. – Identification of orphan fields that could be supported.	– Opportunity to communicate with the public on science funding and to focus attention on the contribution of foundations. – Understanding the role of foundations in supporting research that neither the public nor the business sector are interested in supporting.
Associations of foundations	– Helping smaller foundations to develop strategies for their research funding.	
Government	– Identification of successful initiatives that could be mainstreamed by public funding bodies.	– Encouraging universities and other research operators to consider the role and impact of foundations in their operation and the potential for cooperation.
Business		

foundations when developing policies. Foundations are valuable players in the research arena for many reasons described in this report. What makes them indispensable is that they are able to act and support research which, for one reason or another, is not supported by industry (because it offers no competitive advantage) or by public authorities (for political reasons or because it is not considered a priority for funding).

– **Associations of foundations:** helping them to better understand how their sector supports research and providing them with supporting documentation when advocating on behalf of foundations. These associations are important intermediaries between their members and the rest of society (civil society, business and government) and also play

	Supporting advocacy	*Supporting the development of research-funding foundations*
	– Foundations able to demonstrate the importance of their role when advocating changes in policy, taxation or legislation to support their research-funding activities.	
	– Better understanding of contribution of research foundations allows associations of foundations and intermediaries between their members and the rest of society to better promote their interests and to lobby on behalf of research-funding foundations.	– Identification and understanding of trends in the sector and hence support in helping it to develop its full potential. – Systematic documentation can encourage unified reporting and greater transparency.
		– Encouraging researchers and research administrators to consider the creation of foundations as a means to pursue their scientific objectives or to support their projects. – Better understanding of research foundations and their activities can inform policies to boost donations and the creation of new foundations.
		– Providing corporations looking to set up their own foundations with details of how other foundations and corporate foundations support research can assist them in deciding on a strategy and objectives for their new corporate foundation.

an important role in communicating and publicizing their members' work and impact on society.

– **Research stakeholders as a whole:** helping them to understand Europe's research foundations, the funding they provide, how they support research and the hurdles they face in their activity, thus facilitating the development of new partnerships through better mutual understanding.

Figure 48, p 157, provides an overview of the benefits of documenting research foundations and the opportunities this could bring for a range of stakeholders who can play a role in supporting further mappings. Among these benefits and opportunities are:

– informing their research-funding activities;
– contributing to the debate on science funding;
– supporting advocacy on behalf of research foundations or of the sector in general;
– supporting the creation of new research-funding foundations.

4.2 How best to build on FOREMAP

FOREMAP has developed and tested a methodology to document research foundations in Europe. Now that the methodology has been tried and tested in four countries and has provided interesting results, the question that needs to be addressed is how best to build on this experience to extend the FOREMAP methodology to mapping in the remaining 23 EU countries.

Quantitative versus qualitative

In considering an extension of the mapping to the rest of Europe, it is important to take into account the different levels of data collection and data availability in each country. For this reason it would be helpful to separate the quantitative and qualitative aspects of the mapping.

With respect to quantitative data collection, in countries where there is no pre-existing database of foundations from which to identify research funders, a snowballing approach should be used to make the initial identification. This first step will lead to the creation of preliminary databases with basic information on research spending. These can then be expanded at a second stage with more detailed information on spending: what foundations fund, how and where they fund it, etc.

As reported by some of the researchers in the four pilot studies, even when databases exist, the snowballing approach is useful to identify foundations that have only recently started funding research, or smaller foundations that are innovative in how they fund research but fall under the radar as their funding is not as visible.

The qualitative dimension of foundations' support for research could be addressed not through written questions but through focus groups that bring together researchers and foundation professionals. This approach would be very efficient in collecting qualitative data on foundations' practices. A shorter questionnaire focusing exclusively on quantitative data would be simpler and easier to complete, thus increasing the response rate.

What is a foundation?

There needs to be some flexibility in applying the definition of foundations, accompanied by comprehensive and clear guidelines on which foundations researchers should include in the research. This is crucial in ensuring that the foundations surveyed in different countries all meet certain criteria and hence that the data collected is comparable.

Important points to highlight in future mappings

Discussions held at the FOREMAP workshop in September 2009 were also an important opportunity to highlight the key points of interest that can be extracted from a mapping such as FOREMAP. Following the pilot phase, the FOREMAP questionnaire has been adapted in order to paint a clear picture of:

- how foundations' research funding is spent in terms of grants, own research programme costs (for operating or mixed foundations) and overhead costs;
- how much private and public money is invested by foundations in research.[1]

Under FOREMAP it has been possible to document the bigger research-funding foundations that are responsible for a large share of philanthropic research funding. However, smaller foundations that award annual prizes or fellowships were not documented. In countries where there are strong databases of foundations, researchers should consider sampling these foundations in order to better document them and to understand their role in research.

[1] The FOREMAP questionnaire has been modified to distinguish the public money that is redistributed through foundations from the private funds that foundations invest in research.

4.3 Next steps

This report, presenting the results of the first FOREMAP mapping, will be used to raise interest in the need to document the support for research and science provided by foundations. It will be used to mobilize stakeholders (including associations of foundations) and to gather political endorsements, at national and European level, to fund and undertake further mappings in a concerted effort across Europe.

Indeed, the main objective of FOREMAP was to develop and test a methodology to document research foundations in the EU27 and to collect comparable data between each country. This will only be possible through the use of common tools and, just as importantly, through international coordination and supervision of national mappings by a committee of expert researchers. This coordination will be particularly important in ensuring coherence in national interpretations of what criteria a foundation must meet in order to qualify as such.

5 Methodology and tools

The findings presented in this report cover foundations' support for research in Germany, Portugal, Slovakia and Sweden.

The data was gathered using a questionnaire and complemented with interviews with representatives from the foundations surveyed. The objectives of the data collection were:

- to identify foundations' research activities;
- to quantify foundations' (financial) contribution to the research sector within the EU;
- to allow for comparative analysis.

The pilot study gathered data on 112 foundations that support research within these countries. These foundations are among the biggest research spenders within the four pilot countries.

Local researchers were selected in the four countries in order to collect the data. They were chosen based on their knowledge of their country's foundation sector and previous experience in researching the sector.

The methodology used in the pilot study can be characterized by its adaptability to the multiplicity of contexts within Europe – contexts that relate not only to the research sector but also to the foundation sector of each European country.

The differences, within the European Union, among the foundation and research sectors required a methodology that would be able to generate comparative results, while at the same time allowing for some flexibility when applying it.

Throughout the development and implementation of the methodology, the project's Scientific Advisory Committee (SAC) oversaw the process and, following discussion with the researchers and project-coordinating team, endorsed any changes deemed necessary.

5.1 Survey

The pilot-study researchers conducted a survey among selected foundations within their countries. The survey was divided into two parts: the initial phase consisted of a questionnaire; the second phase consisted of interviews with some foundation members, following up on their answers to the questionnaire. Researchers were free to use whatever communication channel they felt to be best suited to their country context.

5.1.1 Scope of the survey

The survey was aimed at foundations that support or operate research. For this purpose, the following terms of reference were used:

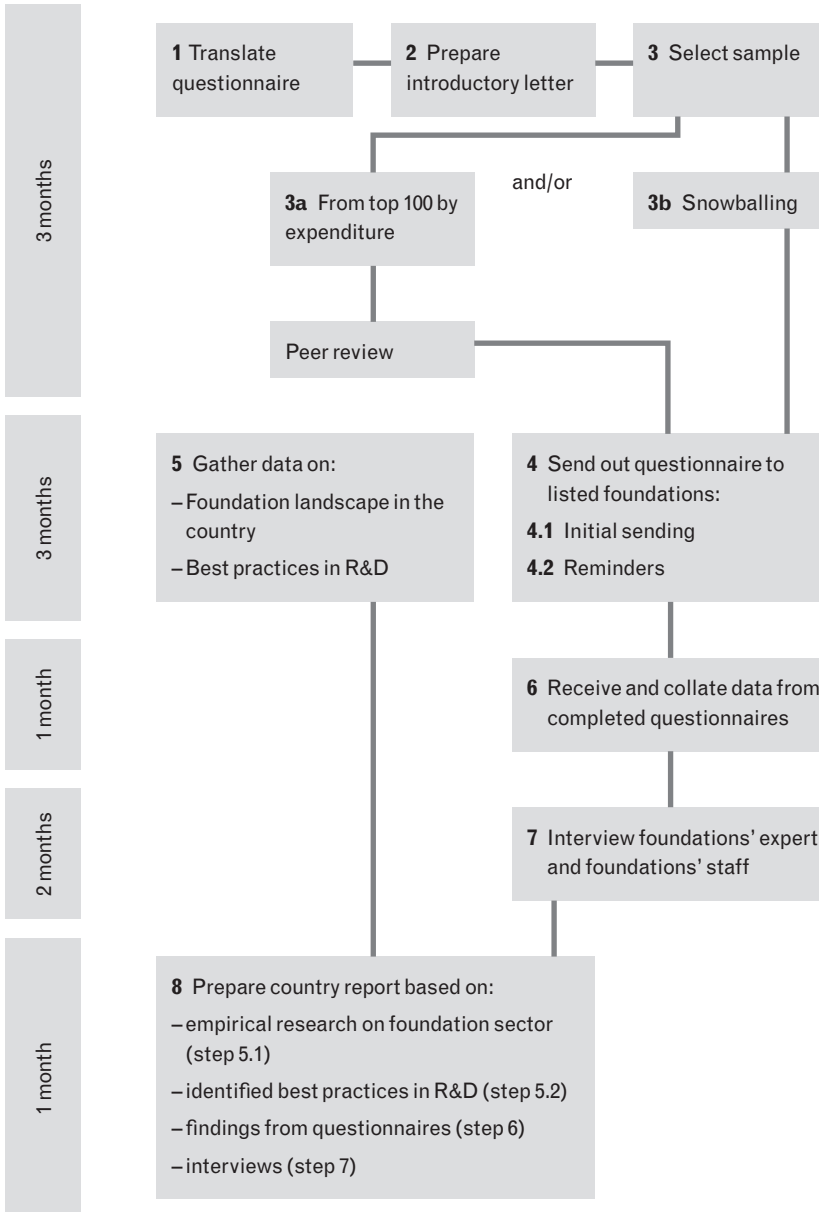
Definition of foundation

Foundations eligible for inclusion in the FOREMAP data collection were selected according to the following broad definition of a public benefit foundation. A foundation is an:

> Asset-based, purpose-driven, separately constituted, non-profit body with no members or shareholders. Foundations have established and reliable incomes, whether they be from an endowment or other sources. They focus on areas of public benefit ranging from the environment, social services, health and education, to science, research, arts and culture.

This definition is based on the articles of the European Foundation Centre's draft *Model Law for Public Benefit Foundations in Europe*; these were identified and agreed upon by experts and actors in the field.

Figure 48 Summary of the mapping methodology



The foundations that were targeted were those that conduct and/or fund basic and/or applied research covering all thematic aspects of science and technology, from the social sciences, humanities, engineering and technology to natural sciences, agricultural sciences and medical sciences (including clinical trials phases 1, 2 and 3). Also targeted were foundations that fund and/or operate programmes or projects in the area of health or in social, economic and political areas, when a significant aspect of the programme or project involves an element of research activity.

Lessons learnt

As legal and fiscal frameworks vary greatly from country to country, it is difficult to come up with a single definition of a foundation. When conducting the FOREMAP pilot project, it was crucial to highlight that the agreed definition serves as a term of reference only and is thus flexible. It was made clear to researchers that the definition could be interpreted and adapted according to the specific country context, and that in case of doubt the project coordinator should be asked for further clarification, in order to ensure that the appropriate foundations were captured in the data collection.

Definition of research

For the purposes of this project, research was defined according to the OECD Frascati Manual 2002 (6th edition), *Proposed Standard Practice for Surveys on Research and Experimental Development*:

> Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications.

This definition is the internationally accepted standard by which R&D is defined and measured.

Additional activities not explicitly covered under the Frascati definition, but which are relevant to the foundation sector, were taken into account for the purposes of this project. These activities included support for projects on researcher mobility, technology transfer (including intellectual property rights/patents), infrastructure (laboratories, research centres, pilot or demo plants), dissemination of research (seminars, conferences, etc), and science communication (museums and science parks).

Lessons learnt
The definition served as a reference only, and researchers were required to adapt it to their own national context. When in doubt, researchers consulted the project coordinator.

Sample of foundations
The foundations were sampled by means of two different methods. In countries where information on the number and expenditure of all foundations within the sector is available, the researchers were requested to target at least 20 foundations that supported research within the top 100 spenders. If this ranking did not include at least 20 foundations, the sample would include foundations further down the ranking until it contained a minimum of 20 foundations.

Lessons learnt
In both the German and the Swedish mapping, the list of foundations identified underwent a peer review, which proved to be an effective way of ensuring the identification of the key funders of research within the country's foundation sector.

Where limited information on the foundation sector was available and foundations' expenditure rankings were not publicly accessible, the list of foundations was compiled using a snowballing method, relying on referrals from initial subjects to generate additional subjects. This was the case with Portugal, where the researcher identified one main research foundation, which was then asked to identify other foundations active in the field of research. In turn, these other research foundations were asked to identify yet others. This process was repeated until the names of a group of foundations were frequently repeated, so ensuring the identification of the key players in the field of research. The snowballing method required significantly more time than the selection of foundations from an already existing ranking, and it was only possible because the researcher was familiar with the foundation sector.

The expertise of the researchers, their familiarity with the foundation sector and their close collaboration with the national associations of donors were crucial in ensuring that no key players were excluded from the sample.

Lessons learnt
As a result of differences in the size of the foundation sectors across Europe, the minimum number of foundations was low. In Portugal and Slovakia, for instance, the number of foundations is below the estimated average. However, from conducting the study it became apparent that the analysis would benefit from a larger sample, especially in countries where the foundation sector is large. Based on the FOREMAP experience, the minimum number of foundations suggested is between 20 and 50, depending on the characteristics of the sector.

5.1.2 Questionnaire

The questionnaire included a set of guidelines followed by 17 questions, both quantitative and qualitative, on foundations' financial expenditure, areas of support, geographical scope, etc. The country researcher then followed up with seven more qualitative questions aimed at obtaining examples of best practices, as well as a better idea of foundations' approaches to supporting research.

Lessons learnt
Data collection is more effective when the questionnaire used includes only closed questions. Open questions should be addressed through interviews.

5.1.3 Interviews

The interviews were an integral part of the study as they allowed a more in-depth understanding of the foundations' activities and their impact in the research arena. Through these interviews, the researchers captured the pool of innovative practices that gave foundations a leading role in supporting research in Europe. Most of the interviews were conducted by phone and followed up by email. The questions asked during the interviews were broad; some followed up on specific answers given in the questionnaire, others were distinct questions not linked with the questionnaire answers.

Lessons learnt
The understanding of the answers given by the interviewees was significantly enhanced when they were complemented with illustrative examples.

The questions covered a wide range of issues presented below. However, researchers were encouraged to complement them with any other aspects they felt were important to a better understanding of the contribution of foundations to research in their countries.

- Reasons for foundations choosing to support and/or operate in research; and the reasons for focusing on a particular field of research or research-related activity. These could be personal, cultural or other types of reason that explain why the foundation focused on research and why on a specific research area. They could be complemented with details of distinctive practices.
- State incentives to encourage foundations to fund and/or operate in the field of research, with specifications and description of how successful they have been in engaging foundations.
- Reasons and incentives that lead foundations to fund research outside their own country, as well as the barriers they encounter when doing so.
- Further description of foundations' perceived role in the area of research, and how they believe they are perceived by other stakeholders such as government and industry.
- Further description of foundations' experience in developing partnerships with other organizations.
- Examples of innovative practices that stand out nationally or internationally. Each foundation was meant to provide a few examples and the researchers could add other examples they knew of. These practices could include successful public–private partnerships involving foundations; innovative projects and initiatives that have had a significant impact; projects engaging the public's interest in research; pilot or demonstration projects, among many others.

5.2 Complementing information sources

Researchers were advised to make use of additional information sources, such as existing databases of national donors' associations, annual reports and official registries. In cases where foundations did not answer one or several questions, or failed to return the questionnaire, researchers made use of publicly accessible data to complete the survey.

In order to contextualize the survey findings, researchers were asked to add a section in their country report providing some background knowledge on the foundation landscape. In this section they included general aspects of the foundation landscape, such as the overall number of foundations, their assets and expenditure, their areas of support, their legal and fiscal status, and their historical profile and involvement in the field of science or research. To compile this section, researchers were requested to make use of pre-existing data and further interviews with experts from the foundation and research sectors.

5.3 Final country report form

The final country report form (see Appendix 2: Country report form) includes not only the results from the questionnaire and interviews but also some contextual data which allowed a better understanding of the results obtained through the survey. This was a template report distributed among the researchers with accompanying guidelines. Each country researcher filled in the form and sent it back to the project coordination team. The standardized format of the report allowed an easier process of comparison between the data from the different countries. Although this significantly decreased the need for contacting the researchers with interpretation questions, it did not eliminate it. For the four surveyed countries, there were follow-up contacts to clarify some points and establish meanings.

5.4 Timeline

The implementation of the FOREMAP methodology took approximately six months. In each country analysis there were one or two people working on the survey and contextualization of the data. The most time-consuming tasks were compiling the sample of foundations, especially when using the snowball sampling method, and following-up on foundations to ensure a high response rate.

Lessons learnt
Research partners noted that an extended timeframe of between 10 and 12 months would provide optimum conditions for data collection.

5.5 Communication channels

The preferred method for distributing the questionnaire was email, on account of the associated low cost and ease of use. Other channels were considered, such as sending by post, but these were thought to be too time-consuming. Some researchers supported the idea of developing an online form, since this would speed up the data analysis process. However, it was acknowledged that more time would be needed to develop such a data processor, which would have other implications for issues such as data ownership.

Several reminders were sent to those foundations that had been identified but had not returned a completed questionnaire.

Lessons learnt
It was noted that shorter deadlines for answering the questionnaire often led to higher response rates, as targeted respondents would be less likely to postpone the task of answering and so run the risk of forgetting about it.

The interviews were undertaken mostly by phone and in person, although follow-up emails were sometimes necessary.

5.6 Revised tools

Based on the lessons learnt in applying the methodology and on the feedback received from researchers and foundations, the methodology tools have been updated (see Appendix 1: Foundation questionnaire) and are freely available for download at www.efc.be/foremap. The changes made to the survey tools were endorsed by the project's Scientific Advisory Committee.

5.7 Background to developing the methodology

The methodology was developed in the context of the FOREMAP project, under the supervision of the project's Scientific Advisory Committee (SAC). It was then tested by the researchers conducting the survey in their own countries and revised in response to feedback received from researchers and foundations. Any changes were endorsed by SAC.

The pilot study covered foundations from four countries within the European Union. The choice of these countries was based on a set of criteria that reflected the diversity of the foundation landscape and research tradition within the European Union (for more details, see Appendix 3: Choice of countries).

Given the heterogeneous character of foundation sectors in the European Union member states, developing a comparative dataset on foundations is always going to be a complex task. Previous attempts have been made to develop a comparative dataset on the international non-profit sector (including foundations). Likewise, efforts have been made to describe the rich and varied foundation landscape in Europe. Some of the key studies are described in Appendix 4: Other research studies. Although none of these studies focus on research, they nevertheless provide useful insights into the different methodologies and tools available for comparative data collection and the kind of data outputs each methodological approach can deliver.

One important observation is that for a comparative mapping, there is no one silver bullet in terms of methodology tools. Instead, these studies rely on a combination of methodological tools and data sources that are adapted to the specifics of the countries under investigation.

Appendix 1: Foundation questionnaire

[Insert country partner logo]
Foundations Research and Mapping (FOREMAP)
Foundation Survey

Purpose of this survey

The data collected through this survey will be used to better understand the impact of foundations in the research arena in your country. The survey is part of the Foundations Research and Mapping (FOREMAP) project, an initiative jointly supported through the European Commission's Seventh Framework Programme (FP7) and by the European Foundation Centre (EFC). The aim of this project is to develop a systematic methodology to collect data on research foundations across Europe.

Anonymity

Please specify if you wish to remain anonymous; information will then only be used in aggregate form.

Who should respond to this questionnaire?

Foundations active in the field of research are those that fund/operate basic and/or applied research projects or programmes covering all thematic aspects of science and technology, from the social sciences, humanities, engineering and technology, to natural sciences, agricultural sciences and medical sciences (including clinical trials phases 1,2 and 3).

Foundations supporting research-related activities are also covered. These include support for projects/programmes on researcher mobility, knowledge transfer (including intellectual property rights/ patents), infrastructure (laboratories, research centres, pilot or demo

plants), dissemination of research (seminars, conferences, etc) and science communication (museums and science parks).

Foundations that are active in the area of health or in social, economic and political areas are also eligible when a significant aspect of the grant or project is focused on research.

When filling in the questionnaire please note the following points:

- Unless otherwise specified, please tick *only one option* in each question.
- Questions 9 to 18 relate to your foundation's finances, therefore you may require assistance from your financial officer in order to answer them.
- When providing expenditure in questions 15 to 17, please avoid double entries.
- Financial information should be in local currency and refer to 31 December 2007. Please specify if otherwise.

If you have any questions about the survey, please feel free to contact [Insert country partner contact]

Please complete the survey by 1 April 2009 and return it to [Insert country partner contact]

General questions

Name of foundation: .....

Contact person for survey: .....

Email: .....

Telephone: .....

Website: .....

Q1 Does your foundation fund/operate research activities?

1 ☐ Yes 2 ☐ No, return the questionnaire.

Q2 Under which category does your foundation fall?

You may tick both options.

1 ☐ Grantmaking 2 ☐ Operating

Q3 How does research fit into your foundation's mandate?

You may tick both options.

1 ☐ Dedicated programme(s)

2 ☐ Transversal activity

Q4 How do you perceive your foundation's role in research?

You may tick one or more options.

1 ☐ *Complementary* to public/other support

2 ☐ *Substituting* for public/other support

3 ☐ *Redistributing* economic resources

4 ☐ *Innovating* ways of doing things

5 ☐ *Promoting* research policy change

6 ☐ *Preserving* research traditions and cultures

7 ☐ *Other* (please specify): .....

Q5 Which areas of research does your foundation support/operate in?

You may tick both options.

1 ☐ Basic research (ie acquiring new knowledge with no particular application or use in view)

2 ☐ Applied research (ie acquiring new knowledge with a particular aim or objective)

Q6 How many R&D personnel do you employ/support?[1]
Number of staff directly employed by foundation (for operating foundations only) .....
Number of researchers funded (by grants, fellowships, etc) .....

Q7 Specify the number of publications that were generated from research in 2007 (for operating foundations only). .....

Q8 Specify the number of patents (including file applications):
Held by your foundation as of 31 December 2007 (operating foundations only). .....
Resulting from projects your foundation has supported (grantmaking foundations). .....

Financial questions

Q9 What is the main source of your foundation's income?
You may tick one or more options.

1 ☐ Endowment (interest and dividends)
2 ☐ Fundraising (through active campaigning)
3 ☐ Service fees, sales, etc
4 ☐ Donations (unsolicited gifts from private individuals, companies, etc)
5 ☐ Public or government funds (EU and national)
6 ☐ Other (please specify): .....

Q10 How much of your income for 2007 originated from public or government funds? (Please provide amount in local currency as of 31 December 2007 – specify if otherwise.) .....

Q11 What are the **total assets** of your foundation?
(Please provide amount in local currency as of 31 December 2007 – specify if otherwise.) .....

[1] Research and development personnel includes all persons employed directly on research and development [activities], as well as those providing direct services such as research and development managers, administrators and clerical staff. Those providing an indirect service, such as canteen and security staff, should be excluded, even though their wages and salaries are included as an overhead cost when measuring expenditure (OECD Frascati Manual 2002, p 92, paras 294–5).

Q12 What is the **total expenditure** of your foundation?
(Please provide amount in local currency as of 31 December 2007 – specify if otherwise.) .....

Q13 What is your foundation's annual research expenditure?
(Please provide amount in local currency as of 31 December 2007 – specify if otherwise.) .....

Q14 Compared to the previous accounting year, research expenditure has:

1 ☐ Increased, please indicate by what %.
2 ☐ Decreased, please indicate by what %.
3 ☐ Remained the same.

Q15 In the next accounting year, research expenditure is expected to:

1 ☐ Increase, please indicate by what %.
2 ☐ Decrease, please indicate by what %.
3 ☐ Remain the same.
4 ☐ Discontinue.

Q16 Which thematic research fields does your foundation fund/operate in?
You may tick one or more options. Specify the expenditure per field. Avoid double entries.

	Annual research expenditure in local currency as of 31 December 2007
1 ☐ Natural sciences (mathematics and computer sciences – software only, physics, astronomy, chemistry, geosciences, biology, etc)	.....
2 ☐ Engineering and technology (civil engineering, electronics, systems analysis, computer engineering – hardware only, etc)	.....
3 ☐ Medical sciences (genetics, clinical microbiology, neurology, epidemiology, etc)	.....
4 ☐ Agricultural sciences (agriculture, forestry, agronomy, fisheries, etc)	.....
5 ☐ Social sciences (psychology, economics, educational sciences, linguistics, etc)	.....
6 ☐ Humanities (history, languages and literature, philosophy, arts, theology, etc)	.....
7 ☐ Other (please specify):	.....

Q17 Which of the following research-related activities does your foundation support/operate with a *dedicated programme only*? You may tick one or more options. Specify the expenditure per activity. Avoid double entries.

	Annual research expenditure in local currency as of 31 December 2007
1 ☐ Researcher mobility and career development	.....
2 ☐ Technology transfer (including intellectual property rights/patents)	.....
3 ☐ Infrastructure and equipment (ie laboratories, research centres)	.....
4 ☐ Dissemination of research (ie seminars, conferences, publications)	.....
5 ☐ Science communication/education (ie museums, science parks, television programmes)	.....
6 ☐ Other (please specify):	.....

Q18 What form does your support for research and research-related activities take? You may tick one or more options. Specify the expenditure per type of support. The total sum should be equal to the total research expenditure provided in question 12.

1 Financial	
a ☐ Grants (grants for scholarships, projects)	.....
b ☐ Awards and prizes	.....
c ☐ Loans	.....
d ☐ Own programming costs	.....
2 ☐ Volunteering	.....
3 ☐ In-kind donations	.....
4 ☐ Other (please specify):	.....
Total	.....

Q19 How is your foundation's research expenditure distributed geographically? You may tick one or more options. Specify the expenditure per geographical area. The total sum should be equal to the total research expenditure provided in question 12.

	Annual research expenditure in local currency as of 31 December 2007
1 ☐ Regional level	.....
2 ☐ Country level	.....
3 ☐ European Union* level (all EU and/or specific EU countries only)	.....
4 ☐ International (worldwide and/or specific countries only)	.....
Total	.....

* European Union member states: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

Foundation operation and practices

Q20 To which sectors do your grantees belong? Please provide an estimate of the distribution of your grantees for the year 2007 according the following sectors.

..... % are higher-education private sector
..... % are higher-education government sector
..... % are government sector (excluding higher education)
..... % are business/enterprise sector
..... % are private non-profit sector
Total: **100%**

Q21 Do you develop joint research activities in partnership with other organizations in the field of research? *Partnership refers to the development of joint research programmes or activities. It does not refer to the relationship between foundations and their grantees.*

1 ☐ Yes 2 ☐ No

If yes, specify what type of partners.
You may tick one or more options.

1 ☐ Other foundations
2 ☐ NGOs
3 ☐ Universities
4 ☐ Government
5 ☐ Industry
6 ☐ Other (please specify):
.....

Why did you engage in these partnerships?
You may tick one or more options.

1 ☐ Leveraging funding
2 ☐ Pooling expertise and/or sharing infrastructure
3 ☐ Creating economies of scale
4 ☐ Expanding activities (internationally or otherwise)
5 ☐ Meeting common goals or new challenges
6 ☐ Increasing impact
7 ☐ Avoiding duplication of effort
8 ☐ Other (please specify):

.....

Q22 If your foundation funds/operates in other EU countries, has it encountered obstacles when doing so?

1 ☐ Yes 2 ☐ No

If yes, specify what type of obstacles.
You may tick one or more options.

1 ☐ Legal
2 ☐ Fiscal
3 ☐ Cultural (including language barriers)
4 ☐ Intellectual property rights
5 ☐ Other (please specify):

.....

Questionnaire feedback

Q23 Please indicate the time (in days) it took to complete the questionnaire (include time spent reading the questions, collecting the information and filling in the questionnaire).

.....

Q24 Was the purpose of the data collection clear to you?

☐ Yes ☐ No (please explain why)

.....

Q25 Were the questions easy to understand?

☐ Yes ☐ No (please explain why)

.....

Q26 Which questions were difficult to answer and why?

.....

Q27 Would you be willing to answer the questionnaire again?

☐ Yes ☐ No (please explain why)

.....

Appendix 2: Country report form

[Insert country partner logo]
Foundations Research and Mapping (FOREMAP)
Pilot Study
Country report form and guidelines
[Insert date]

Guidelines

The country report should be based on the project's methodology, which includes two phases, questionnaires and follow-up interviews. Researchers are requested to follow the format below when reporting on their data analysis. Each report should be structured as follows:

Section I Answers to the questionnaire

This section should reflect the results of phase 1 of the survey, the questionnaires. Please take into consideration the following points:

- When foundations do not reply to all the questions in the questionnaire, you are requested where possible either to go back to the foundation or to search for information through other sources (eg annual reports, websites, databases).
- Please indicate how many foundations each answer relates to.
- Financial information (questions 9 to 18) should be provided in local currency and refer to 31 December 2007. Specify if otherwise.
- When foundations specify different years for their finances in questions 15 to 18, specify this in your country report.
- When foundations do not specify expenditure in questions 15 to 18, you are requested to go back to them to ask for expenditure values.
- If the sum of expenditure per field in questions 17 and 18 does not add up to the total research expenditure (provided in question 12), you are requested to go back to the foundation to ask for clarification.

Section II Interview answers

This section should relate to the results of phase 2 of the methodology, the interviews.

Section III Overview of the foundation landscape

This section should provide a brief overview of the foundation sector in the country. For this you can rely on previous analyses of the foundation sector as well as interviews with foundation experts in your country.

Section IV Data collection background

Section V Feedback on the usability of the FOREMAP mapping methodology

Feel free to add additional analysis to the report where necessary and when doing so would enrich content and provide a better understanding of the foundation sector and its contribution to the research sector.

Please return the completed country form by [insert date 10 months after the distribution of the methodology and tools to researchers].

Should you have any questions, please contact Inês de Oliveira Magalhães (IMagalhaes@efc.be).

Country report form – [Insert country name]

Section I Answers to the questionnaire

Please provide the following details using the answers to the questionnaire.

Q1 How many foundations:

1 Considered that they fund/operate research? .....

2 Sent the questionnaire back because they considered that they do not fund/operate research? .....

Q2 Specify the number of research foundations that are:

	No. of foundations
1 Grantmaking	.....
2 Operating	.....
3 Mixed	.....
Total	.....

Q3 Specify how many research foundations have research as:

	No. of foundations
1 Dedicated programme(s)	.....
2 Transversal activity	.....
3 Both	.....
Total	.....

Q4 How do foundations perceive their role in research?

	No. of foundations
1 *Complementary* to public/other support	.....
2 *Substituting* for public/other support	.....
3 *Redistributing* economic resources	.....
4 *Innovating* ways of doing things	.....
5 *Promoting* research policy change	.....
6 *Preserving* research traditions and cultures	.....
7 *Other* (please specify):	
.....	
.....	
.....	
Total	.....

Q5 Indicate the number of selected foundations that support/operate in:

	No. of foundations
1 Basic research	.....
2 Applied research	.....
3 Both	.....
Total	.....

Q6 Specify how many R&D personnel the foundations employ/support.

Number of staff directly employed by the foundations (for operating foundations only)	.....
Number of researchers funded (by grants, fellowships, etc)	.....

Q7 Specify the number of publications that were generated in 2007 (for operating foundations only). .....

Q8 Specify the number of patents (including file applications).

Held by foundations as of 31 December 2007 (operating foundations only)	.....
Resulting from projects foundations have supported (grantmaking foundations)	.....

Q9 Specify the number of foundations that use each of the following as their main sources of income:

	No. of foundations
1 Endowment (interest and dividends)	.....
2 Fundraising (through active campaigning)	.....
3 Service fees, sales, etc.	.....
4 Donations (unsolicited gifts)	.....
5 Public or government funds (EU or national)	.....
6 Other (please specify):	

.....

.....

.....

Total .....

Q10 Specify share of foundations' income originating from public or government funds. .....

Q11 Specify the **total assets** of the foundations that answered the questionnaire (please provide amount in local currency as of 31 December 2007 – specify if otherwise). .....

Q12 Specify the **total expenditure** of the foundations that answered the questionnaire (please provide amount in local currency as of 31 December 2007 – specify if otherwise). .....

Q13 Specify the **total research expenditure** of the foundations that answered the questionnaire (please provide amount in local currency as of 31 December 2007 – specify if otherwise). .....

Q14 Compared to the previous accounting year, specify the number of foundations whose research expenditure:

	No. of foundations	No. of foundations that specified % of fluctuation	Average fluctuation
1 Increased	.....	.....	.....%
2 Decreased	.....	.....	.....%
3 Remained the same %	.....	.....	.....%
Total	.....	.....	.....%

Q15 In the next accounting year, specify the number of foundations whose research grant/own programme expenditure is expected to:

	No. of foundations	No. of foundations that specified % of fluctuation	Average fluctuation
1 Increased	.....	.....	.....%
2 Decreased	.....	.....	.....%
3 Remained the same	.....	.....	.....%
2 Discontinue	.....	.....	.....%
Total	.....	.....	.....%

Q16 Indicate the number of foundations that fund/operate in the following research fields and specify their research expenditure per field (please provide amount in local currency as of 31 December 2007 – specify if otherwise).

		No. of foundations	No. of foundations that specified expenditure	Total annual research expenditure in local currency as of 31 December 2007
1	Natural sciences (mathematics and computer sciences – software only, physics, astronomy, chemistry, geosciences, biology, etc)	.....	.....	.....
2	Engineering and technology (civil engineering, electronics, systems analysis, computer engineering – hardware only, etc)	.....	.....	.....
3	Medical sciences (genetics, clinical microbiology, neurology, epidemiology, etc)	.....	.....	.....
4	Agricultural sciences (agriculture, forestry, agronomy, fisheries, etc)	.....	.....	.....
5	Social sciences (psychology, economics, educational sciences, linguistics, etc)	.....	.....	.....
6	Humanities (history, languages and literature, philosophy, arts, theology, etc)	.....	.....	.....
7	Other (please specify):			
	.....	.....	.....	.....
	.....	.....	.....	.....
	.....	.....	.....	.....
	Total	.....	.....	.....

Q17 Indicate the number of foundations that fund/operate in the following research-related activities as a dedicated programme only. Specify their research expenditure per activity. (Please provide amount in local currency as of 31 December 2007 – specify if otherwise.)

		No. of foundations	No. of foundations that specified expenditure	Total annual research expenditure in local currency as of 31 December 2007
1	Researcher mobility and career development	.....	.....	.....
2	Technology transfer (including intellectual property rights/ patents)	.....	.....	.....
3	Infrastructure and equipment (ie laboratories, research centres)	.....	.....	.....
4	Dissemination of research (seminars, conferences, publications)	.....	.....	.....
5	Science communication/ education (ie museums, parks, television programmes)	.....	.....	.....
6	Other (please specify):			
	.....	.....	.....	.....
	.....	.....	.....	.....
	.....	.....	.....	.....
	Total	.....	.....	.....

Q18 Indicate the number of foundations that use the following support mechanisms. Specify their research expenditure per type of mechanism. (Please provide amount in local currency as of 31 December 2007 – specify if otherwise.)

	No. of foundations	No. of foundations that specified expenditure	Total annual research expenditure in local currency as of 31 December 2007
1 Financial			
a Grants (grants for scholarships, projects)	.....	.....	.....
b Awards and prizes	.....	.....	.....
c Loans	.....	.....	.....
d Own programming costs	.....	.....	.....
2 Volunteering	.....	.....	.....
3 In-kind donations	.....	.....	.....
4 Other (please specify):			
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Total	.....	.....	.....

Q19 Indicate where foundations focus their research expenditure.

	No. of foundations	No. of foundations that specified expenditure	Total annual research expenditure in local currency as of 31 December 2007
1 Regional level	.....	.....	.....
2 Country level	.....	.....	.....
3 European level	.....	.....	.....
4 International	.....	.....	.....
Total	.....	.....	.....

Q20 Describe how the surveyed foundations' grantees are spread among the following sectors:

– higher-education private sector

- higher-education government sector
- government sector (excluding higher education)
- business/enterprise sector
- private non-profit sector

Max 500 words

Q21 Do foundations engage in joint research activities in partnership with other organizations in the field of research? Partnership refers to the development of joint research programmes or activities. It does not refer to the relationship between foundations and their grantees.

	No. of foundations
1 Yes	.....
2 No	.....
Total	.....

Specify the type of partner.

	No. of foundations
1 Other foundations	.....
2 NGOs	.....
3 Universities	.....
4 Government	.....
5 Industry	.....
6 Other (please specify):	
.....	
.....	
.....	
Total	.....

How many foundations specified the following reasons for engaging in partnerships?

	No. of foundations
1 Leveraging funding	.....
2 Pooling expertise and/or sharing infrastructure	.....
3 Creating economies of scale	.....
4 Expanding activities (internationally or otherwise)	.....
5 Meeting common goals or new challenges	.....
6 Increasing impact	.....

7 Avoiding duplication of effort .....

8 Other (please specify):

.....

.....

.....

Total .....

Q22 Of the foundations that fund/operate outside the country, indicate the number that encountered obstacles while doing so.

	No. of foundations
1 Obstacles	.....
2 No obstacles	.....
Total	.....

Specify the type of obstacle.

	No. of foundations
1 Legal	.....
2 Fiscal	.....
3 Cultural	.....
4 Intellectual property rights	.....
5 Other (please specify):	
.....	
Total	.....

Feedback on questionnaire

Q23 How many days in total did foundations need in order to reply to the survey?

A total of ..... foundations took ..... days to answer this questionnaire.

The *maximum* number of days needed to complete the survey by one foundation was: .....

The *minimum* number of days needed to complete the survey by one foundation was: .....

Q24 How many foundations specified that the purpose of the questionnaire was:

	No. foundations
1 Clear	.....
2 Unclear	.....
Total	.....

Describe the reasons given by the foundations for not understanding the purpose of the questionnaire.
Max 200 words

Q25 How many foundations specified that the questions were:

	No. foundations
1 Easy to understand	.....
2 Difficult to understand	.....
Total	.....

Describe the reasons given by the foundations for not understanding the questions.
Max 200 words

Q26 Which questions were difficult to understand?

	No. of foundations	Comments
1	.....	.....
2	.....	.....
3	.....	.....
4	.....	.....
5	.....	.....
6	.....	.....
7	.....	.....
8	.....	.....
9	.....	.....
10	.....	.....
11	.....	.....
12	.....	.....
13	.....	.....
14	.....	.....
15	.....	.....

16 .....
17 .....
18 .....
19 .....
20 .....
21 .....
22 .....

Q27 Would foundations be willing to answer the questionnaire again?

	No. of foundations
1 Yes	.....
2 No	.....
Total	.....

Describe the reasons given by the foundations for not wanting to repeat this exercise.
Max 200 words

Section II Interview answers

The answers given below should reflect the answers given during the interviews undertaken in the course of the mapping. They may require further analysis of literature on the sector and/or interviews with other experts and practitioners from the research and foundation sectors.

Q1 What are the reasons (personal, cultural or other) for foundations choosing to support/operate in research? And what are the reasons for foundations to focus on a particular field of research or research-related activity? Please include details of any distinctive practices.
Max 500 words

Q2 Are there any state incentives to encourage foundations to fund/operate in the field of research? If so, please specify them and explain how successful they have been in engaging foundations?
Max 300 words

Q3 Why do foundations choose to work outside their country? What are the barriers and incentives for funding/operating in the field of research outside their own country?
Max 300 words

Q4 How do foundations perceive their role in research? How are they perceived by other actors (government and industry)?
Max 300 words

Q5 What reasons are given by foundations for fluctuations in their expenditure relative to the previous accounting year?
- Increased
- Decreased
- Remained the same

Max 200 words

Q6 What reasons are given by foundations for expected fluctuations in their expenditure in the coming accounting year?
- Increase
- Decrease
- Remain the same
- Discontinue

Max 200 words

Q7 How do foundations describe the experience of developing partnerships with other organizations?
Max 300 words

Q8 What do foundations feel policy-makers could do to encourage them to support research?
- At regional level
  Max 500 words
- At national/country level
  Max 500 words
- At EU level
  Max 500 words
- At international level
  Max 200 words

Q9 Specify research funding/operating practices that stand out in your country. These practices concern:
- Successful public–private partnerships involving foundations
  Max 500 words
- Innovative projects and initiatives that have had a significant impact

Max 500 words

- Projects engaging the public's interest in research
  Max 500 words
- Pilot or demonstration projects
  Max 500 words

Q10 Please feel free to use this section for any additional information that may improve the understanding of the role of foundations in the field of research.
Max 500 words

Section III Overview of the foundation landscape

Based on your past analysis and knowledge of the sector, describe briefly the foundation landscape in general, such as how many foundations exist overall in your country, their assets and expenditure, and their legal status and historical profile. Within this context, introduce foundations' historical involvement in the field of science or research. You may rely on pre-existing data to fill in this section.
Max 500 words

Section IV Data collection background

When writing this section, answer the following questions:

Q1 How many foundations were selected for the study? .....

Q2 How representative of the whole sector do you consider this group of foundations to be? .....

Q3 Describe how you applied the overall methodology for selecting the foundations that were surveyed.
Max 300 words

Q4 How many foundations responded directly to the survey? .....
How many foundations responded to the survey after being reminded? .....
How many reminders were necessary? .....

For each question indicate the number of responses, if it differs from the total number of foundations replying to the questionnaire in general.

Q5 For how many of the foundations selected did you have to refer to sources of information other than the survey? Please specify the type of sources used. .....

Q6 Indicate the additional data sources used for sections II and III. .....

Q7 How many working days did it take to conduct the data collection and analysis? .....

Section V Feedback on the FOREMAP mapping methodology

When writing this section, answer the following points:

Q1 How applicable were the survey and accompanying reporting guidelines to your country's foundation landscape? Was the classification of research fields and types of activities applicable?

Q2 Was the purpose of the data collection clear to you? .....

Q3 Were the tools/content/guidelines easy to follow? .....

Q4 What aspects of the methodology would you keep? .....

Q5 What aspects of the methodology would you change in order to improve it? .....

Q6 Do you think it was a worthwhile exercise?
Max 500 words

Appendix 3: Choice of countries

The pilot study was undertaken in four EU countries, according to the following criteria:

- geographical location
- size of the foundation sector (estimated average: 21 foundations per 100,000 inhabitants)[1]
- country's R&D performance (2006 average: 1.84 per cent of GDP)[2]

According to these criteria, the following country profiles were created:

	Country 1	*Country 2*	*Country 3*	*Country 4*
Geographical location	northern	central	central	southern
Number of foundations	above average	below average	below average	below average
Country's R&D performance	above average	above average	below average	below average

Following a review of the 27 EU member states, a list of countries meeting the criteria was identified:

[1] European Foundation Centre (2008), *Foundations in the European Union: Facts and figures*. Report on work by EFC Research Task Force. Brussels: European Foundation Centre.

[2] http://europa.eu/rapid/pressReleasesAction.do?reference=STAT/08/34&format=HTML&aged=0&language=EN&guiLanguage=en.

Country 1	*Country 2*	*Country 3*	*Country 4*
Denmark	Austria	Belgium	Bulgaria
Finland	France	Czech Republic	Cyprus
Sweden	Germany	Luxembourg	Greece
		Netherlands	Italy
		Poland	Portugal
		Slovakia	
		Slovenia	

Additional parameters that were taken into consideration when making the final decision on which countries to target were the countries' EU membership status (founding, established or new member state) and the number of inhabitants (EU average: 18 million).

Country profile 1

The countries fulfilling these criteria are located in northern Europe; they have a foundation sector which is bigger than the estimated average; and the percentage of their GDP which is allocated to R&D is higher than average. The country chosen from the three listed above was Sweden, which is an established EU member state and whose number of inhabitants is below average.

Country profile 2

These are central European countries, with a foundation sector that is smaller than the estimated average and a percentage of GDP spent on R&D that is higher than average. The country chosen for the survey was Germany, which is a founding EU member state and whose number of inhabitants is above average.

Country profile 3

The third country profile includes countries located in central Europe, with a foundation sector that is smaller than the estimated average and a percentage of GDP spent on R&D that is lower than average. From the countries meeting these criteria, Slovakia was chosen, which is a new EU member state and whose number of inhabitants is below average.

Country profile 4

The fourth country profile includes countries located in southern Europe, with a foundation sector that is smaller than the estimated average and a percentage

of GDP spent on R&D that is lower than average. From the countries meeting these criteria, Portugal was chosen, which is an established EU member state and whose number of inhabitants is below average.

Appendix 4: Other research studies

Name	*Duration*	*Outline*	*Countries covered*	*Scope*	*Comparative?*
EFC Research Task Force	2002–2008	Produced a comparative map of the foundation sector in the EU, describing the growth of the sector, foundations' economic weight, how foundations allocate their resources.	16: Belgium, Czech Republic, Estonia, Finland, France, Germany, Hungary, Italy, Latvia, Netherlands, Portugal, Slovakia, Slovenia, Spain, Sweden, UK	Foundations	Y
Foundations in Europe, Watson Wyatt and London Business School	2007	Constructed a comparable ranking of the largest European foundations and a database recording key financial information such as asset allocation and disbursement rates. This data was compared with that for the top 50 US foundations.	12: Denmark, France, Finland, Germany, Italy, Portugal, Spain, Sweden, Switzerland, Netherlands, UK, US	Foundations	Y

	Methodology	*Data sources*	*Classification system*
	– Developed a methodology and tools that included a survey with questionnaires and guidelines at foundation and national level, and a classification system. –Worked with several national partners who adapted, where necessary, and disseminated the questionnaire to the highest possible number of foundations in an attempt to cover the whole sector. –The response rate varied; some national research partners extrapolated the values to the whole foundation sector, and some others made an exploratory analysis of the data received from foundations. –The countries participating included those where the EFC Research Task Force was able to find a researcher willing and with the capabilities to participate in the project. – National research partners used additional information sources to compile the answers in the country-level questionnaires: existing databases, official journals, annual reports, statistical data gathered by the national statistics offices, official registers, official public files of ministries, interviews with foundations' representatives, other national and regional associations of donors. –The country-level questionnaires were then sent back to the EFC secretariat, where the information was compiled into a report at the EU level.	– National survey(s) – Sector-specific databases – Annual reports – Official national and regional registers – Official journals	EFC Classification System
	– Compiled a list of 80 European foundations with estimated assets over €500 million from a variety of sources. – Carried out in-depth research on the initial list by means of a survey and by analysis of published annual reports. – Constructed final ranking based on either survey responses or published numbers. – Made comparisons with top 50 US foundations and their endowments. US data was derived using publicly available disclosures and figures from the Foundation Centre and NACUBO.	– National associations – Industry publications – Foundations' annual reports – Foundations' websites – Sector databases – Previous surveys	International Classification of Nonprofit Organizations (ICNPO)

Name	*Duration*	*Outline*	*Countries covered*	*Scope*	*Comparative?*
Johns Hopkins Comparative Nonprofit Sector Project	1990–	Analyses the scope, structure, financing and role of the private non-profit sector in a cross-section of countries around the world in order to improve knowledge and enrich theoretical understanding of this sector, and to provide a sounder basis for both public and private action towards it.	44: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Czech Republic, Egypt, Finland, France, Ghana, Germany, Hungary, India, Ireland, Italy, Japan, Mexico, Morocco, Netherlands, Norway, Pakistan, Poland, Portugal, Romania, Slovakia, South Africa, Spain, Sweden, Switzerland, UK, US, among others	'non-profit' or 'voluntary' institutions	Y
The Politics of Foundations: A comparative analysis (Anheier and Daly)	2001–2004	Produced a comparative analysis of the policy environment in which foundations in Europe operate.	18: Austria, Belgium, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Spain, Sweden, Switzerland, UK (also includes a comparative view from the US)	Foundations	Y

	Methodology	*Data sources*	*Classification system*
	– Uses country-level researchers to conduct data collection. – Conducts an inventory of existing statistical data sources in each country that contain information on the non-profit sector or its parts. – Uses these existing data sources to develop reasonable estimates of the various dimensions of the non-profit sector of interest. –When no existing data source provides sufficient information on a particular activity group or variable of interest, the research teams conduct targeted surveys using, for the most part, common survey instruments developed by the project. – Uses computer-based tables to collect country-level data. – Uses a network of national and international advisory committees to oversee progress and help disseminate results. –The data assembly strategies differed from country to country depending on the nature of the specific data sources.	– Annual reports – National statistical offices – Other public authorities databases (tax, employment) – Population census – Sector-specific registries and databases – Surveys	International Classification of Nonprofit Organizations (ICNPO)
	– Used country-level researchers to conduct data collection. – Compiled and updated a comparative empirical profile of foundations in each European country in terms of types, size, areas of activities, changes over time, etc. – Selected foundations in each country: 25–30 for countries with larger foundation sectors and 10–15 for countries with smaller foundation sectors, according to age, size and type of foundations and the researchers' own knowledge of the foundation sector. These lists underwent peer review to avoid bias. – Analysed annual reports and other relevant material relating to the foundations selected. – Identified a subset of foundations (12–15 for larger countries, 8–10 for smaller countries) from initial selection for further analysis via interviews. – Conducted interviews with foundation representatives and other relevant stakeholders in each country, including policy-makers, members of umbrella organizations and government organizations. – Used a common set of themes and questions to guide researchers in their case study analyses. – Invited all of the interviewees to attend a country workshop to discuss findings from the interviews.	– Annual reports and other relevant material – Interviews	

Name	*Duration*	*Outline*	*Countries covered*	*Scope*	*Comparative?*
Visions and Roles of Foundations in Europe (London School of Economics)	2001–2003	Produced a comparative analysis of the current and future role of foundations in Europe, in the context of the prevalent and future policy environment in which they function. The project provided a quantitative profile of foundations in Europe, and examined their role and contributions in meeting the economic, cultural, environmental and educational needs of European societies.	21: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Liechtenstein, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, UK (also includes a separate analysis of the EU and a comparative perspective from the US)	Foundations	Y

	Methodology	*Data sources*	*Classification system*
	– Used country-level researchers to conduct data collection. – Compiled and updated a comparative profile of foundations in each European country in terms of types, size, areas of activities, etc. –Took a sample of the largest foundations in each participating European country (30–50 foundations for larger countries,10 for smaller ones). Selection was made on endowment size, influence, etc. A sample of small and medium-sized foundations was also taken. – Analysed annual reports, and other relevant material relating to the foundations' vision, objectives and activities was collected. – Identified a subset of foundations for closer examination based on analysis of the material collected. – Conducted expert interviews with these foundations to gain a better and in-depth understanding of the issues involved. – Contacted and interviewed relevant representatives of government, corporations and non-profit organizations to collect information on how they view the current and future role of foundations both nationally and at the European level. – Organized a one-day workshop to explore some of the underlying themes in greater detail.	– Annual reports and other relevant material – Interviews	

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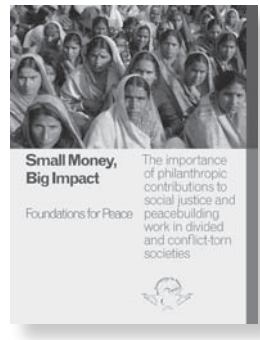

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